“ANALYSIS OF ACUTE ABDOMEN”

Dissertation submitted in partial fulfillment of the
Requirement for the award of the degree of

M.S DEGREE EXAMINATION
GENERAL SURGERY
Tirunelveli

DEPARTMENT OF GENERAL SURGERY
TIRUNELVELI MEDICAL COLLEGE
THE TAMILNADUDR.MGR MEDICAL UNIVERSITY
CHENNAI , TAMILNADU
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CERTIFICATE

This is to certify that this dissertation titled **"ANALYSIS OF ACUTE ABDOMEN"** is a bonafide work of **Dr.G.R.BALAJI SHARMA**, and has been prepared under my guidance, in partial fulfillment of regulations of The TamilnaduDr. M.G.R. Medical University, for the award of M.S. Degree in General Surgery during the year 2014.

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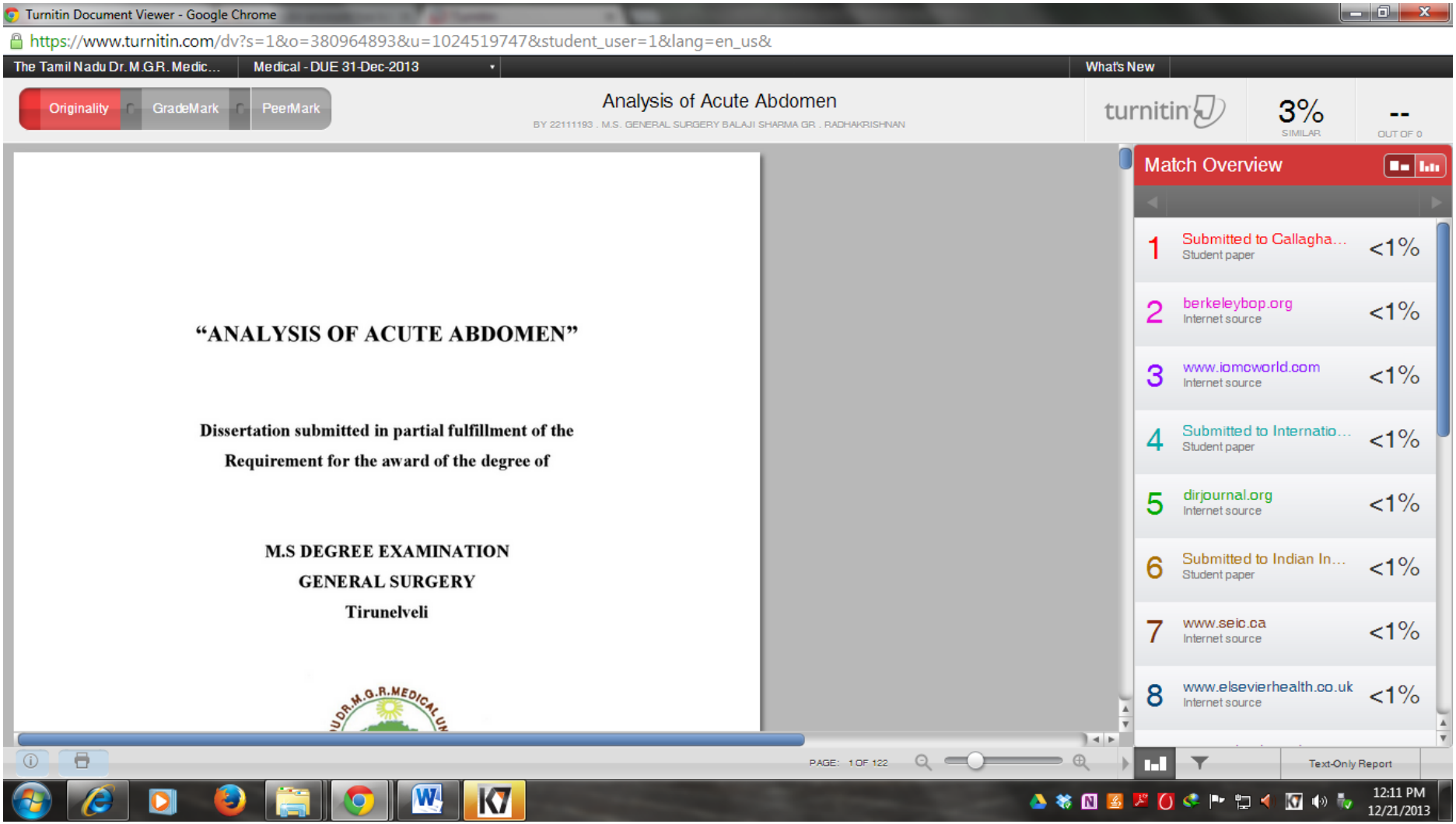
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I hereby declare that this dissertation/thesis entitled "**ANALYSIS OF ACUTE ABDOMEN"** is a bonafide and genuine research work carried out by me under the guidance of **Prof. Dr. R. MAHESHWARI M.S ,** Department of Surgery, Tirunelveli Medical College, Tirunelveli– 627011.

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"There is no achievements is grater than respecting the parents"

DR.G.R.BALAJI SHARMA

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF CHARTS

LIST OF ABBREVIATIONS

A/C	-	Acute
DUP	-	Duodenal Ulcer Perforation
GUP	-	Gastric Ulcer Perforation
IP	-	Ileal Perforation
Eg	-	Example
DD	-	Different Diagnosis
H/O	-	History of
RIF	-	Right Iliac Fossa
GB	-	Gall Bladder
IVF	-	Intra Venous Fluids
NG Tube	-	Nasogastric Tube
CRD	-	Corrugated Rubber Drain
USG	-	Ultrasonogram
VS	-	Versus
N	-	Normal
C	-	Constipation
D	-	Diarrhoea
GA	-	General Anaesthesia
TPR	-	Temperature Pulse Respiration
BP	-	Blood Pressure
YRS	-	Years
POD	-	Post Operative Day
CA	-	Carcinoma

ABSTRACT

TITLE : Analysis of acute abdomen

AUTHOR : G.R.Balaji Sharma

KEY WORDS : Acute abdomen, operated, complications

BACKGROUND : The study was conducted in Tirunelveli medical college hospital from January 2013 to November 2013. Total of 250 consecutively operated cases of various etiologies have been studied. Patient clinical presentation, accurate history, operative findings and post operative complications were noted.

RESULTS : In our study of acute abdomen, the presentation of acute appendicitis was 46.4%, perforation peritonitis was 30.8%, Intestinal obstruction was 22.8%. Male to Female ratio was 2.2:1 with the male predominance. The clinical presentations were vomiting 58%, constipation 40%, distension 26%, fever 25.6%. The clinical signs were tachycardia 74.4%, guarding 68.8%. The clinical accuracy was 91%. The emergency surgeries done were appendicectomy 46.4%, perforation closure with live omental patch 26%. The post operative complications noted were wound infection 22%, respiratory infection 11.6%, mortality 4.8%

CONCLUSION : The commonest acute abdominal emergency was acute appendicitis, second commonest was perforation peritonitis, third commonest

was intestinal obstruction. Acute abdomen commonly seen in males. Commonest age group affected was 41 to 50 years. The commonest presentation next to abdominal pain was vomiting. The commonest clinical sign next to abdominal tenderness is tachycardia. The commonest surgery performed was emergency open appendicectomy. Commonest post operative complication was wound infection. Mortality most commonly seen in cases of perforation peritonitis.

INTRODUCTION

Acute abdomen means acute onset of abdominal symptoms that may occur suddenly or gradually over a period of several hours and presents a symptom complex that possibly threatens life and demands immediate diagnosis and early treatment.

Acute abdomen is the commonest surgical emergency in our department. It remains the important cause of morbidity and mortality in emergency. So it is necessary for the surgeon to be familiar both with the presentation of common cause of abdominal pain and validity of the diagnostic tests.

Diagnosis of acute abdomen before laparatomy is essential in reducing the morbidity and mortality, while negative laparatomies is not condemned. In spite of all the ultramodern investigations and treatment, abdomen still continues to be the "PANDARO'S MAGIC BOX".

Sir Henle's aphorism "In acute abdominal emergencies, the difference between the best and worst surgery is infinitely less, than between early and late surgery and greatest sacrifice is sacrifice of time."

AIM & OBJECTIVES

1. To analyse the proportion of various causes
2. To analyse the sex and age wise distribution
3. To analyse the commonest symptoms and signs
4. To analyse the accuracy of clinical diagnosis
5. To analyse the various surgical management
6. To analyse the surgical outcome

REVIEW OF LITERATURE

HISTORY:

Problems of acute abdomen observed as early as in 8th century BC . In the era of Hippocrates, they named as 'Ileae passion Ileus'.

Intestinal obstruction:

In ancient times intestinal obstruction was treated by

1. giving enemas.
2. Sushrutha recommended incision of intestine ,
3. replacement of intestinal segments after moisturising them with honey and butter,
4. sewing up of intestine.

1556 – pierrefraneo – surgery for inguinal hernia

1836 – jaharnfriedrich – resection of gangrenous bowel

1710 – jeanjulima – colostomy

1911 – Schwartz – gas distended bowel loops/ air fluid levels in x rays.

Perforation peritonitis:

1727 –Rowlinson - signs and symptoms of perforation peritonitis

1891 – hensher – intervention for peptic ulcer perforation

Acute appendicitis:

1736 – Claudius Amyand – first appendicectomy

1755 – Lorenz heister – appendix is the site of inflammation

Mc Burney – clinical features of appendicitis.

ANATOMY

The knowledge of anatomy is essential in diagnosing the abdominal conditions

Abdomen is the second major body cavity. It contains major organs of digestion and excretion. The abdominal cavity or the coelom contains most of the intra abdominalorgans , which lined by mesothelium supported by a thin layer of connective tissue. The peritoneum supports the abdominal organs and act as the conduit for the blood vessels, lymph vessels and nerves.

Peritoneum consists of two layers,

1)Parietal peritoneum attached to the abdominal wall

2)Visceral peritoneum wrapped around the internal organs located in the peritoneal cavity

Potential space between these two layers is called the peritoneal cavity, which consists of 50ml of slippery serous fluid, which allows the two layers to slide freely each other.

Peritoneal cavity divided into ,

1) Major or general peritoneal cavity
2) Omentalbursae or lesser peritoneal cavity.

These cavities communicate through the' foramen of winslow'

REGIONS OF ABDOMEN:

The abdomen is divided into 9 quadrants by a pair of transverse and vertical lines drawn on anterior abdominal wall.

The transverse lines are,

1. Thetranspyloricline (addison's line): midway between the body of the manubrium sterni and pubic symphysis. Passes along lower border of L1 vertebra.
2. The transtubercular line: passes along the tubercles of iliac crest.Situated along the upper border of L5 vertebra.

The vertical lines are,

Right and left midclavicular lines (Mid poupart)

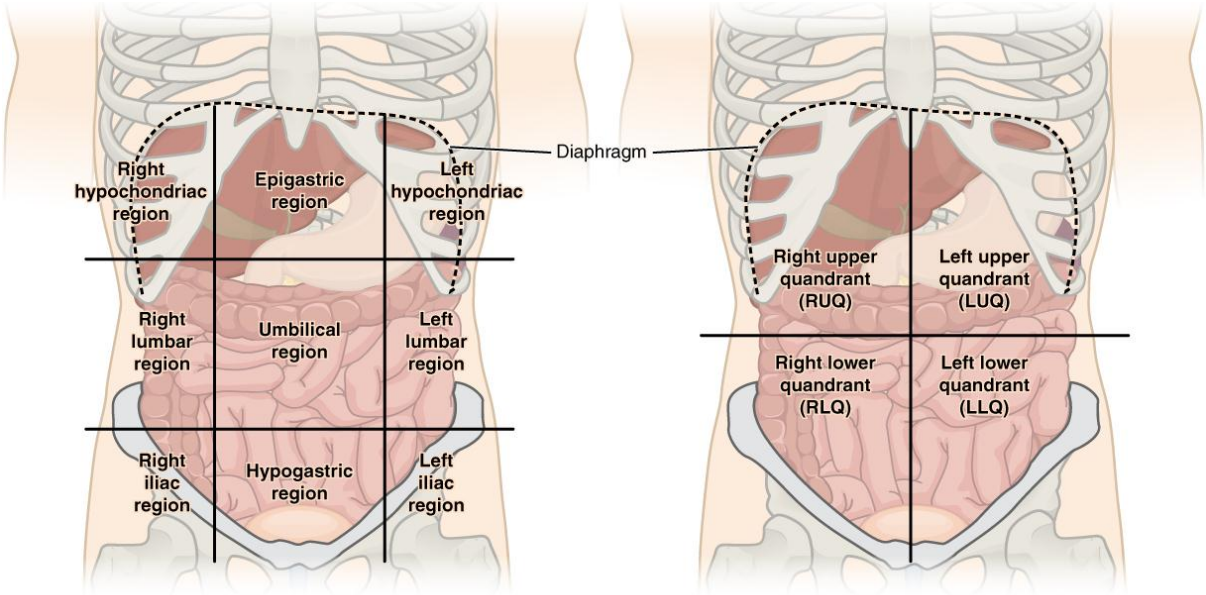
It extends from the middle of the clavicle to the middle of the inguinal ligament.

Upper zone : right hypochondrium, epigastric,lefthypochondrium

Middle zone : right lumbar, umbilical, left lumbar

Lower zone : right iliac, hypogastric,left iliac

REGIONS OF ABDOMEN



(a) Abdominopelvic regions

(b) Abdominopelvic quandrants

STOMACH

(Gaster/ventriculus)

It is the most dilated part of gastrointestinal system. It situated in the upper abdomen occupies the left hypochondriac,epigastric,umbilical regions.

Stomach has,

1)two ends - cardiac and pyloric

2)two borders - lesser and greater curvature

3)twosurfaces - anterosuperior and posteroinferior

4)two peritoneal sac related to it

5)twoomenta attached to it

parts of the stomach are... fundus,body,pyloricantrum and pyloric canol.

Arterial supply:

Left gastric artery, right gastric artery, right gastroepiploic artery, .left gastro epiploic artery.

Lymphatic drainage:

Superior gastric nodes, inferior gastric nodes, sub pyeloric nodes, hepatic nodes, pancreaticolineal nodes..... all are finally drains in to the celiac nodes.

Venous drainage:

Portal, superior mesenteric and splenic veins

Nerve supply:

Sympathetic – greater splanchnic nerves (T6 to T10 segments of spinal cord)

Parasympathetic - vagus

DUODENUM

It is derived from both foregut and midgut

It has no mesentry

It is partially covered by peritoneum

It has four parts

I part:5 cm long... extends from the pylorus to the neck of the GB

II Part:7.5 cm long.... descending part, extends from L1 to L3

III part:10 cm long.... lies at the level of L3 vertebra.

IV part:2.5 cm long .....Extends from L3 to L2

Arterial supply:

Gastroduodenal artery (supra duodenal artery of wilkie, retroduodenal artery)

Right gastro epiploicatery(infra duodenal artery)

Superior pancreaticoduodenal artery

Inferior pancreatico duodenal artery

Venous drainage :

Veins accompany the arteries and ends in the superior mesenteric vein.

Lymphatic drainage :

Hepatic nodes

Sub pyloric nodes

Pancreatico splenic nodes

Nerve supply:

Sympathetic :Greater splanchnic nerve and superior mesenteric plexus

Para sympathetic :Vagus

JEJUNUM AND ILEUM

Length:Six meters

Parts: Upper 2/5 is jejunum

Lower 3/5 is Ileum

Commencement: Jejunum commences at duodenojejunalflexure left side of L2 vertebra.Gradually jejunum becomes ileum

Termination: Opening in to caecum

Peritoneal relation:

They are connected to the posterior abdominal wall by an fan shaped fold of peritoneum called mesentry.

Mesentry extends from the left side of L2 vertebra to right sacro iliac joint.

Arterial supply:

Superior mesenteric artery (branches from this artery freely anastamose with each other and forms arterial windows)

Ileo colic artery supplies lower part of ileum

Venous drainage :

Superior mesenteric vein

Lymphatic drainage:

Mesenteric nodes drains into superior mesenteric nodes.

Nerve supply:

Superior mesenteric plexus (sympathetic and vagus nerves)

LARGE INTESTINE

Lenth:1.5 meters

Parts:

1.Caecum and Appendix

2.Ascending colon

3.Transverse colon

4.Descending colon

5.Pelvic colon or Sigmoid colon

6.Rectum

7.Anal canal

Peculiariries :

1. **Taeniea coli**

   They are longitudinal bundles of muscle fibres.

   Three types

   a. Taenialibera

   b. Taeniamesocolica

   c. Taeniaomentalis

2. **Appendices epiploicae**

   They are peritoneal pouches with fat

   It absent in,

   a. Appendix

   b. Rectum

   c. Anal canal

3. **Sacculations (haustrations)**

   It gives segmented appearances for the colon

THE CAECUM

It is the beginning of large intestine

Development : Midgut

Situation : Right iliac fossa

Dimensions : Transverse diameter is greater than the length.

Transverse diameter – 7.5 cm

Length – 6 cm

Peritoneal folds:

1. Superior iliocaecal fold – vascular fold
2. Inferior iliocaecal fold – bloodless fold of treves
3. Posterior caecal fold

Peritoneal recess:

Superior iliocaecal recess, inferior iliocaecal recess, retro caecal recess

Caecal valves:

1. valve of **Tulpius**– Iliocaecal valve
2. Valve of **Gerlach** – guard the appendicular opening

Arterial supply:

Anterior and posterior caecal artery (fromIliocaecal artery)

Venous draiage:

Iliocaecal veins drains into superior mesenteric vein.

Lymphatic drainage :

Iliocaecal group of lymph nodes

Nerve supply:

Sympathetic:

1. Superior mesenteric branch of celiac plexus
2. T 10,11,12 and L1 segments of spinal cord.

Parasympathetic:

Right and left vagus nerve

APPENDIX

It is known as abdominal tonsil (plenty of follicles seen in its wall)

Highly vascularised and great histological differentiation than anvestigeal organ.

Deplopment : Mid gut

Length : 3 to 20 cm (avg- 10 cm)

Peritoneal relations :

The peritoneum covers all sides axcept the line of mesoappendix.The mesoappendix is the semilunar fold of peritoneum. It connects the terminal part of the ileum and appendix.

Within the mesoappendix following structures are situated,

1. Appendicualr vessels
2. Lymph nodes , lymph vessels and plexus of nerves
3. Fat and connective tissue
4. Recurrent branch of the posterior caecal artery

Parts of the appendix:

1. Base
2. Body of the appendix
3. Tip

In infants the lumes is wide

Young adult the lumen is narrowed ...fecolith or odema is more common

Middle age and above the lumen is obliterated.

Positions of the appendix:

1. Mid poupart - 6 ‘ clock position
2. Promontric - 3’ clock position
3. Pelvic - 4’ clock position
4. Splenic - 2’ clock position
5. Retro caecal - 12’ clock position

6. Para colic position - 11’ clock position

Splenic position commonly causes general peritonitis during appendicitis pathology. Hence this position is called ‘dangerous position of the appendix’

Abnormally appendix may be situated in,

1. Left hypochodrium
2. Sub hepatic appendix
3. Left iliac fossae

Arterial supply:

1. appendicular artery – branch from the inferior division of the iliocolic artery. This is an end artery.
2. Recurrent appendicular artery – branch from the posterior caecal artery. It predominantly supplies the base of the appendix.
3. Accessory appendicular artery – present occasionally.

Venous drainage :

Appendicular vein drains into the superior mesenteric vein.

Infection from the appendix may cause portal phlebitis and liver abscess

Lymphatic drainage :

Ilio colic lymph nodes drain in to the superior mesenteric nodes.

Nerve supply:

Sympathetic supply:

T10 segment of the spinal cord. It also supplies the umbilicus

This segment of nerve joins the superior mesenteric plexus.

Parasympathetic supply:

Right and left vagus

THE ASCENDING COLON

Length : 13 cm

Commencement : As the upward continuation of the caecum

Termination : Terminates as the hepatic flexure of the colon

Peritoneal relations:

It covers anterior surface and both sides of the colon

Arterial supply:

1. Iliocolic artery
2. Right colic artery

Venous drainage:

Ilio colic and right colic veins drains into the superior mesenteric vein.

Nerve supply:

1. Vagus nerve
2. Superior mesenteric plexus

THE TRANSVERSE COLON

This is a large segment of the large intestine

Development :Right 2/3 – mid gut andLeft 1/3 - hind gut

Length :45 cm

Extent :Hepatic flexture to splenic flexture

Hepatic flexure:

It is found below the trans pyloric line. It is situate about 10 cm to the right side of the midline.

It lies anterior to the right kidney.

Splenic flexture :

This is situated on the left side , higher level than the hepatic flexture,above the trans pyloric line. It is connected to thediaphram by phrenico colic ligament.

Direction:

It passes medially crossing the second part of the duodenum and head of the pancreas. It passes downwards, medially behind the umbilicus and then it passes upwards and to the left towards the hypochondric region to form the splenic flexure.

Supports:

1. **Transverse mesocolon**

   It connects the organ to the anterior border of the pancreas

2. **Gastro colic ligament**

-It is formed by the fusion of the transverse mesocolon with the inferior surface of the greater omentum

-it divides the peritoneal cavity into the supracolic and infracolic compartments.

Arterial supply:

Right colic flexure side,

1. Ascending branch of the right colic artery
2. Right branch of middle colic artery

Transverse colon,

3. Middle colic artery

Splenic flexure side,

4. Ascending branch of the left colic artery

The **marginal artery of Drummond** is formed by the anastamosis between the various colic arteries. This artery is found about 8-10 mm away from the colon.

Near the splenic flexture the left branch of the middle colic artery and ascending branch of the left colic artery has poor communications. This the dangerous area as the the collateral circulation is least possible here. Sometimes an **arc of Riolan**provies an anastamosis between middle colic and left colic arteries, this boosts the blood supply.

Venous drainage :

Veins end in marginal veins, which then terminates in the superior and inferior mesenteric vein.

Lymphaticdrainage:

Right 2/3 drains into the superior mesenteric nodes

Left 1/3 drains into the inferior mesenteric nodes

Nerve supply:

Sympathetic:

The right 2/3 supplied by the lesser splanchnic nerve via superior mesenteric plexus and superior mesenteric ganglia.

The left 1/3 is supplied by the inferior mesenteric plexus.

Parasympathetic:

Right 2/3 – vagus nerve

Left 1/3 – pelvic splanchnic nerves S2,3,4

Sensation enters into the sympathetic and referred to dermatomes T10 and T11 (umbilical and hypogastric region)

THE TRANSVERSE MESOCOLON

It is made up of two layers of peritoneum. It encloses the following structures,

1. Transverse colon
2. Left colic,middle colic, and right colic vessels
3. Nerve plexus
4. Lymphatics

THE DESCENDING COLON

Length :25 cm

Extend :Splenic flexture to pelvic brim

Termination :Terminates by forming the pelvic colon

Peritoneal relations :

Front and sides are covered by the peritoneum.

Arterial supply:

Left colic artery (arise from inferior mesenteric artery)

Venous drainage:

Left colic vein to join the inferior mesenteric vein

Lymphatic drainage:

Inferior mesenteric group of lymph nodes

Nerve supply:

Sympathetic - inferior mesenteric plexus

Parasympathetic - pelvic splanchnic nerve

PELVIC COLON(SIGMOID COLON)

Length :25 to 40 cm

Commencement :Continuation of the descending colon in front of the leftexternal iliac artery.

Termination :At the level of the upper border of the third sacral vertebra it becomes rectum.

It hangs as an loop

Peritoneal relationship:

A fan shaped sigmoid meso colon connects the pelvic colon to the posterior pelvic wall. The root of the attachment of this meso colon as inverted "V" shaped recess called inter sigmoid. Through this recess left ureter passes.

Anteriorly:

Male – urinary ladder

Female – uterus, upper vagina

Posteriorly:

Sacrum

Arterial supply:

1. Sigmoid arteries are branches of the inferior mesenteric artery.
2. Recto sigmoid artery is a branch of inferior mesenteric artery

Critical point of Sudek:

The recto sigmoid artery may not communicate with the lowest sigmoid artery. So the lower part of the sigmoid is considered as the critical point.

Venous drainage :

Inferior mesenteric vein

Lymphatic drainage :

Left colic nodes drains into the inferior mesenteric nodes

Nerve supply:

Sympathetic - inferior mesenteric plexus

Parasympathetic - pelvic splanchnic nerves.

RECTUM

The rectum is the penultimate part of the alimentary system. Rectum means straight. But the human rectum is not straight. It has three curves,

1. Convex to right at its commencement
2. Convex to left at the level of sacrococcygeal joint
3. Convex to right at the level of tip of the coccyx

Length :15 cm

Commencement :Downward continuation of the sigmoid colon at the level of upper border of S3 vertebra.

Termination :Terminates by becoming the anal canal after piercing the levatorani muscle.

Ampulla of rectum:The terminal dilated part of the rectum, situated just above the levatorani muscle

Peritoneal relations:

Upper 1/3 – peritoneum covers the anterior and lateral surface of the rectum

Middle 1/3 – peritoneum covers only the anterior surface of the rectum

Lower 1/3 – non peritoneal

During malignancy of the rectum, transperitoneal spread of the disease occurs from the upper 2/3 of the organ.

Peritoneal reflection in male:

From the front of the rectum the peritoneum is reflected forwards as the upper part of the posterior surface of the urinary bladder. There is a peritoneal pouch called

rectovesical pouch is formed. This is the most dependent part of the male peritoneal cavity, it lodges,

1. Coils of ileum
2. Pelvic colon

The floor of this pouch situated about 7.5 cm above the anal opening.

Peritoneal reflection in female:

From the front of the rectum the peritoneum is reflected forwards to the upper part of the vagina and then to the back of the uterus. Thus a peritoneal pouch called rectouterine pouch or pouch of douglass is formed. This is the most dependent part of the female peritoneal cavity.

It also lodges the coils of ileum and pelvic colon.

The floor of this pouch situated 5.5 cm above the anus, and 7.5 cmabove the vaginal verge.

Fascia of waldeyer:

Condensation of pelvic fascia forms this ligament. It extends from the anorectal junction to the coccyx.

Arterial supply:

1. Superior rectal artery
2. Pair of middle rectal arteries
3. Pair of inferior rectal arteries

Venous drainage:

Superior rectal vein drains into the splenic vein. Middle and inferior rectal vein drains into the internal iliac vein.

Lymphatic drainage:

Upper 1/3 – drain along the superior rectal vessels into inferior mesenteric lymph nodes

Middle 1/3 – drain along the middle rectal veins into the internal iliac veins

Lower 1/3 – drain into the internal iliac nodes.

Nerve supply:

Sympathetic supply:

superiorhypogastric plexus (L1,L2 segment of the spinal cord)

Parasympathetic supply:

nervierigentes (S2,3,4)

ANAL CANAL

It is the terminal portion of the alimentary system

Length :4 cm

Commencement :Downward continuation of the rectum at the level of ano rectal junction

Termination :It terminates by opening into the exterior at anal opening. The anal opening is situated about 4 cm infront of the tip of the coccyx.

Interior of the anal canal:

Upper part :

It is 15 mm in length

It is lined by columnar epithelium

It has following characters,

1. Anal columns (columns of morgagni)

   They are longitudinal folds of mucus membrane. Within each column a radical of superior rectal vessels situated.

2. Anal valves

   Lower end of the anal column lined by mucosal folds called anal valves

   The line along which the anal valves are situated is known as pectinate line.

Middle part:

It is about 15 mm in length.

This area is limited above by the pectinate line and below by the white line of Hilton(represents the lower border of the sphincter aniinternus)

It is lined by non keratinising squamous epithelium

Lower part:

It is about 10 mm in length

It is situated below the white line of Hilton

Skin epithelium lines this area

The pectinate line:

It has following characteristics

1. Above this line is lined by columnar epithelium, below this line is lined by squamous epithelium
2. It is a mucocutaneous junction
3. Area above the line is insensitive to pain because it is supplied the autonomic nerves, area below this line is supplied by spinal nerves.
4. Developmentally area

   above the pectinate line – entodermalcloaca

   below the pectinate line –ectodermal proctodaeum.

Arterial supply:

Superior to pectinate line – superior rectal arteries

Below the pectinate line – inferior rectal artery

Venous drainage :

Superior rectal vein (portal system), communicates with the middle and inferior rectal veins (systemic circulation)

Lymphatics:

Above the pectinate line – internal iliac nodes

Below the pectinate line – superficial inguinal nodes

CHIEF COMPLAINTS

PAIN:

Site:

Usually coincides with the position of the affected organ.

Sharp pain – patient indicates with the tip of the finger (pointing test)

Diffuse pain-patient use the whole hand to indicate.

Pain at flanks – renal origin. Below costal margin – liver or GB.

Epigastric region - peptic ulcer perforation, acute pancreatitis.

Time of onset:

Acute appendicitis – early morning

Peptic ulcer perforation – afternoon, mostly after lunch, patient brought to hospital at night .

Mode of onset:

Sudden onset – perforation, colic, torsion, volvulus.

In case of acute appendicitis, pain initially boring and vague type, latter it becomes acute

Duration :

Recurrent pain seen in appendicitis, cholecystitis

In peptic ulcer periodicity noted before perforation.

Shifting of pain:

In acute appendicitis- pain initially begins around umbilicus (initial visceral pain felt around umbilicus due to same segmental nerve supply T10) then shifted to RIF(parietal peritonitis)

Radiation of pain:

Due to spreading peritonitis.... seen in peptic perforation

In duodenal ulcer perforation pain initially felt at right hypochondrium then spred to right iliac fossa due to gravitation of gastric contents in right para colic gutter.

Referred pain:

Pain felt at some other region

Due to same segmental cutaneous distribution

Eg- stomach, duodenum, jejunum....T5 to T8.... felt in epigastrium

Ileum and appendix.....T9 to T10..felt in umbilicus

Colon..... T11,T12&L1,L2..... hypogastrium

Diaphragm.....C3&C4.....shoulder on corresponding site

Biliary colic....T7,T8,T9.....inferior angle of right scapula

Character of pain:

1.colicky pain- sharp intermittent gripping pain comes on suddently and disappears suddently.

Bowel obstruction intestinal colic

CBD obstruction biliary colic

Ureter obstruction ureteric colic

2. constant burning pain seen in peritonitis frequently seen in perforated duodenal ulcer.

3.Agonising pain seen in pancreatitis and torsion

4.throbbing pain seen in cholecystitis

Change in the character of the pain is not a good sign.

Colicky pain of intestinal obstruction change into constant burning pain indicates strangulation

Pressure relieve colicky pain aggravates inflammatory pain

Jolting aggravates the pain of appendicitis and cholecystitis

Lying still slightly relieves the pain of peritonitis

Sitting up from the recumbent position relieves the pain of pancreatitis

VOMITING

1. **Character :**

   Projectile- involuntary forceful ejection of a large quantity of vomitus

   Seen in high intestinal obstruction,toxic enteritis

   Non projectile- regurgitation of mouthful of vomitus

   Seen in general peritonitis/perforation

2. **Nature of vomitus**:

   It can be gastric ,bilious ,intestinal ,feculent ,blood stained.

   In intestinal obstruction , initially it is gastric then bilious followed by feculent.

3. **Frequency and quantity:**

It is frequent and profuse in intestinal obstruction.

In perforation peritonitis vomotting is rare in first two stages, in later stage vomiting is profuse and mixed with blood.

4. **Relationship with pain:**

Pain precedes vomiting in acute appendicitis, acute pancreatitis, biliary and renal colics.

Vomiting and pain appears simultaneously in high intestinal obstruction.

Vomiting relieves pain in peptic ulcer

BOWEL HABITS:

Obsolute constipation- intestinal obstruction

In appendicitis,

Colonic spasm - constipation

Rectal irritation in pelvic appendicitis - tenesmus

Passing blood and mucus with distension -intussusception

Diarrhoea - ulcerative colitis

Mesenteric thrombus – blood and putrid stools

MICTURITION :

Strangury –painful and frequent attempts of micturition .commonly seen in stone in the ureter or bladder .

DD:retrocecal appendicitis, pelvic appendicitis

DRUG HISTORY:

Drugs like analgesics causes gastric irritation and abdominal apin

PERSONAL HISTORY :

In female patients menstrual history is very important because history of missed period is often present in rupture of ectopic gestation .

If a patient present with the symptom of acute appendicitis and the middle of the her menstrual period one should suspect follicular cyst .

Smoking and alcoholic history always be enquired

PAST HISTORY :

1 .Perforated peptic ulcer – H/O ulcer pain ,hemetamesis , malena

2 .Appendicitis and renal colic –H/O previous attack

3 .Intestinal obstruction –H/O previous abdominal operation

PHYSICAL EXAMINATION :

1**.APPEARANCE:**

In acute abdomen patient present with peculiar facial expression known as 'abdominal facies'

1 .Facieshippocratica –terminal stage of peritonitis

(anxious look , bright eyes , pinched face and cold sweat)

2 .Faciesof dehydration –state of severe dehydration

(sunken eyes ,drawn cheeks and dry tongue)

3.Facies of cyanosis –seen in hemorrhagic pancreatitis

(blueness of the face).

2.**ATTITUDE** :

1.In colic the patient usually tossed on the bed , doubled up or rolls up in vain .

2.In early stage of peritonitis – patient usually remains quiet

3.In last stage and post operative peritonitis patient become highly excitable .

3.**PULSE** :

In early stage of acute abdomen pulse rate - normal eg:acute intestinal obstruction , acute hemorrhagicpancreatitis,perforation of peptic ulcer.

In internal haemorrhage, pulse –rapid

In peptic perforation, pulse –normal

In peritonitis, pulse –quickened

In acute intestinal obstruction pulse - normal in early stage later falls .

4.BLOOD PRESSURE:

It helps to asses the patient status.

Hypotension denotes the patient in the state of shock

5.RESPIRATION :

In acute abdomen respiration may seldom be high eg:barring internal hemorrhage ,late case of peritonitis.

6.TEMPERATURE:

In infective condition temperature will be raised

1. Acute appendicitis temperature will be quiet high

2. In acute cholecystitis temperature is raised to moderate degree

3. In acute diverticulitis temperature may not beraised .

7.TONGUE:

An index of the state of the digestive system .

1.Dry tongue – state of dehydration.

2. Dry and coated tongue-appendicitis due to vomiting

3. Dry and brown tongue –toxaemia .

8.ANAEMIA ,CYANOSIS AND JAUNDICE :

Pallor usually seen in hemorrhagic condition –ruptured ectopic gestation

Cyanosis is seen in hemorrhagic acute pancreatitis

Jaundice is usually seen in biliary colic and acute pancreatitis

EXAMINATION OF THE ABDOMEN :

INSPECTION :

Patient examined in lie flat on his back with his legs extended

The whole abdomen should be inspected from the nipple above down to the saphenous opening (mid thighlevel)

Good light is essential

1.**First inspect all the hernia orifices**

(if this examination left for the last it may be missed and actual cause of acute abdomen remain obscured)

2.contour of the abdomen :

Normal shape –scaphoid /flat

Central distention –small bowel obstruction

Peripheral distention – large bowel obstruction

Diffuse distention of all quadrants seen in massive peritonitis

3.respiatory movements :

Absent respiratory movements of abdomen wall –seen in,

a. Perforation peritonitis
b. Ruptured ectopic gestation

4.peristaltic movement :

Characteristic 'ladder pattern peristalsis' – small bowel obstruction

.**5.pulsating swelling :**

Seen in abdominal aneurysm .

6.skin over the abdomen :

any surgical scars

discolouration of the flanks (gery turner sign), bluish hue around the umbilicus(cullen's sign) seen in late stage of haemorrhagic pancreatitis.

PALPATION:

It is important to use the volar aspect of the palm to palpate the abdomen , start farthest from the site of the disease. Keep the hand warm to gain the confidence of the patient.

1.It is important to note the area of hyperesthesia to clinch the diagnosis. Hyperesthesia in sherren's triangle seen in acute appendicitis.Boas's sign (hyeresthesia between 9^{th} and 11^{th} rib on right side posteriorly seen in acute cholecystitis)

2.Area of tenderness, muscle rigidity, guarding should be looked for.

Involuntary muscle rigidity is known as muscle guard .it is due to perietal peritonitis.

Voluntary muscle rigidity is known as simple rigidity. This usually brought by the patient himself due to fear of hurt.

3.Any distension, any palpable masses should be looked for.

4. Hernial orifices palpated.

5. Named signs to be looked for, it gives clue to the diagnosis (Eg- cullen's sign ... periumblical bruising indicates hemoperitoneum)

PERCUSSION:

Light percussion done to identify,

1. Area of local tenderness
2. Shifting dullness
3. Fluid thrill
4. Obliteration of liver dullness.

AUSCULTATION:

Normal bowel sound –‘ clicks or gurgles’

Diffuse peritonitis – silent abdomen

Bowel obstruction –‘ metallic tinkles or borborygmi’

MEASUREMENTS:

Periodic abdominal measurements done to asses the rate of distension.

RECTAL EXAMINATION:

It is done to identify tenderness, mucosal integrity, any growth,andalterted stool colour like malena.

PERVAGINAL EXAMINATION:

Fornicealtenderness seen in ruptured ectopic gestation, and acute salpingitis.

EXTERNAL GENITALIA :

scrotum, testes,vas deferens should be examined.

In case of filariasis retro peritoneal lymphangitis present as acite abdomen

INVESTIGATIONS

COMPLETE BLOOD COUNT:

Leucocytosis indicates the inflammatory pathology.

In septicaemia the count may be decreased. So serial estimation is required

BLOOD SUGAR , UREA, CREATININE:

In diabetic crisis blood sugar is high.

In case of shock or gangrenous bowel the renal parameters raised.

Helps to rule out uremia.

ELECTROLYTES:

Due to severe vomiting electrolyte abnormality is most often detected.

SERUM AMYLAE:

Helps to identify the acute pancreatitis.

Normal – 80 to 150 somogyi units. (more than 400 units is suggestive of panreatitis)

URINE ACETONE:

Helps to identify diabetic ketoacidosis.

LIVER FUNCTION TEST:

raised in pancreatitis and cholecystitis.

URINE PREGNANCY TEST:

Helps to rule out ectopic gestation rupture.

X- RAY:

It affords distinct help in arriving at the diagnosis.

1. **Gas distended bowel loops**

   It is the earliest sign in intestinal obstruction. It is seen before the air fluid level.

   jejunum – Valvulaeconniventesseen

   Ileum –chracterless

   Large bowel – haustral folds seen

2. **Multiple air fluid level**

   Indicates intestinal obstruction

   four to six hours required to form air fluid level

   Normally 3 inconstant fluid levels seen

   a. Fundal shadow
   b. Duodenal cap
   c. Terminal ileum

   Four or more fluid levels, each one greater than 3 cm in size is diagnostic

   In infants under 2 years of age few fluid levels are not abnormal

   In paralytic ileus – more conspicuous and more numerous air fluid levels

   Other signs:

   a. Ischemia of the colon – abscence of valvulaeconniventes

b. Strangulation of colon – intramural gas seen

c. Closed loop obstruction –

   unchanged position of gas/ fluid loops

   pseudotumor sign – dilated bowel loop with fluid appear as tumor like mass

d. Two point stenosis (eg: sigmoid volvulus) – coffee bean appearance

3. Air under diaphragm(Pneumoperitoneum):

Indicates GIT perforation

Minimum 1 ml of free air is required.

Signs observed in pneumoperitoneum,

1. Cupola sign – large amount of free air under domes of diaphragm
2. Rigler's sign- intraluminal and extraluminal air outlines the mucosa and serosal surface of the bowel
3. Air dome sign (football sign) – air collects around the falciform ligament . Linear density seen inferior aspect of liver resembles foot ball
4. Inverted ' V' sign – central umblical ligament contains the umbilical artery seen as inverted V.
5. Triangle sign- trapping of air between three loops of bowel

6. Prehepatic sign – air trapped between the liver and anterior abdominal wall.
7. Urachus sign – air around the uachus. It is seen in midline just below the umbilicus level
8. Morrison's sign – it is an triangular air collection over the upper pole of the right kidney.

PSEUDO PNEUMOPERITONEUM:

These are the conditions mimic like air beneath the diaphragm, correct identification of the conditions may avoid unnecessary laparatomy.

1. Chiladiti's syndrome-interposition of the colon between the liver and diaphragm.
2. Sub diaphragmatic fats commonly arise from the para renal fat or omental fats
3. Curvilinear pulmonary collapse
4. Uneven diaphragm

4.acute appendicitis:

It is very difficult to recognise. But the following features may be seen,

a. Localised ileus in RIF– atonic ileum contains fluid level
b. Loss of normal lumbar contour.. excess concavity towards right
c. Widened haustrations of colon due to oedema
d. Psoas outline blurred
e. Appendicolith seen as radiopaque mass with central radiolucency.

f. Localised collection of air bubbles indicates appendicular abscess.

5. 20 % gall stones are radio opaque they seen anterior to the vertebral column in lateral films..... renal stones are seen over the vertebral column.

6. acute pancreatitis:

Gas within the pancreas, sentinel loop sign, stewart's sign, colon cutoff sign, renal halo sign, left sided pleural effusion

7.Primary peritonitis – ground glass appearance

ULTRASONOGRAM:

1. Acute appendicitis:

a. Probe tenderness in RIF in graded compression.
b. Non compressible , aperistalitic appendix with target lesion
c. Diameter of appendix more than 6mm
d. Tubular structure with absence of peristalisis, which ends blindly
e. Presence of appendicoliths
f. Thickened caecal wall due to oedema
g. Localised collection of fluid in RIF favours appendicular perforation
h. Hypoechoic mass adjacent to the inflamed appendix is highly suggestive of appendicular abscess

2. Intestinal obstruction:

Not useful due to gas distended bowel loops

Multiple concentric rings – intussusceptions

Fluid filled dilated bowel proximal to collapsed caecum – small bowel obstruction

Dilated, akinetic bowel segment – strangulation of bowel

3. **GIT perforation(pneumoperitoneum):**

Interference of echos with shifting phenomenon

4. **Renal pathology:**

Renal, ureteric calculi,bladder calculi, pyonephrosis, renal abscess, traumatic renal rupture can be detected.

5. **Biliary pathology:**

Biliary calculi, GB perforation,acutecholecystitis, emphysematous cholecystitis can be detected.

6. **Acute pancreatitis**:

Oedema around the pancreas, enlarged pancreas, indistinct boundaries, ascites, pleural effusion, pseudocysts can be detected.

7. **Gynaecological causes:**

Ruptured ectopic gestation, pelvic inflammatory diseases can be detected.

CAUSES OF ACUTE ABDOMEN

INTRA-ABDOMINAL CAUSES

1.INFLAMMATIONS

a.Acute Appendicitis

b.Acutecholecystitis

c.AcutePancreatitis

d.AcuteDiverticulitis

e.AcuteSalpingitis

f.AcutePneumococcal peritonitis

g.AcuteRegional ileitis

h.Amoebic liver abscess

i.Nonspecific mesenteric lymphadenitis

2.PERFORATIONS

a.Peptic ulcer

b.Typhoid ulcer

c.Diverticular disease

d.Ulcerative colitis

3.ACUTE INTESTINAL OBSTRUCTION

a. Mechanical

1)In the lumen

Gallstone

Faecoliths

Round worms etc.

2)In the wall

Intussusception

Tubercular stricture

Growth

3)Outside wall

Adhesion bands

Volvulus

Hernia

b. Toxic

Paralytic ileus

c. Neurogenic

Hirschsprung`s disease

d. Vascular

Occlusion of mesenteric vessels

4.HAEMORRHAGE

a.Rupturedectopics

b.Rupture of spleen

c.Leaking aortic aneurysm and dissecting aneurysm

5.TORSION OF PEDICLE

Twisted ovarian cyst,spleen etc.

6.COLICS

Biliary

Ureteric

Appendicular

Intestinal

7. EXTRAABDOMINAL CAUSES

Parietal and retroperitoneal conditions, thoracic conditions, diseases of spine.

NON-SURGICAL CAUSES OF ACUTE ABDOMEN

1.Cardiac

a.Myocardial infarction

b.Acute pericarditis

2. Pulmonary

Pneumonia

Pulmonary infarction

3. Gastro intestinal

Acute pancreatitis

Gastroenteritis

Acute hepatitis

4. Endocrine

Diabetic ketoacidosis

Acute adrenal insufficiency

5. Metabolic

Acute intermittent porphyria

Familial Mediterranean fever

Hyperlipidemia

Uraemia

Allergic factors

6. Musculoskeletal

Rectus muscle herniation

Distortion of traction of mesentry

Trauma or infection of muscle

Radiculitis from arthritis

7. Distension of visceral surfaces

Hepatic capsule

Renal capsule

8. Nervous system

Tabesdorsalis

Nerve root compression

Herpes zoster

Causalgia

9. Genitourinary

Pyelonephritis

Acute salphingitis

Torsion testis

10. Haemotologic

Sickle cell anemia

11. Exogenous

Black widow spider bite

Lead poisioning

12. Functional causes.

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ACUTE APPENDICITES

Acute appendicitis is an very common condition, the etiology still not clearly made out.

It is rare before two years, maximum incidence seen between 20 to 30 years, thereafter the incidence gradually decreases.

It is two types,

1. Non obstructive
2. Obstructive

Non obstructive(Catarrhal):

Inflammation of the mucus membrane occurs with redness oedema and haemorrhages

It may undergo resolution/ ulceration / fibrosis / suppuration

It progress slowly

Pain is dull aching in nature

Obstructive :

Sudden onset

Progresses very rapidly

Pus collects with in the lumen of the appendix leads to gangrene and perforation of the appendix

Thrombosis of the appendicular artery commonly occurs .

Pain is colicky in nature

Pain, vomiting, temperature is the common symptom

Constipation is the common accompaniment

Hyperparesthesia in sherren's triangle

Tenderness in Mcburney"s point

Localised guarding, rebound tenderness present in RIF

Localised ileus in RIF evident as sluggish BS

APPENDICULAR MASS:

It is the localisation of infection occurring **3 to 5 days** after an attack of acute appendicitis

The mass consists of ,

1. Inflamed appendix
2. Greater omentum
3. Oedematous caecum
4. Parietal peritoneum
5. Dilated ileum

The mass is tender, smooth,firm and well localised.

Mass Moves with respiration.

All borders clearly made out.

Resonant on percussion.

Patient may have fever and features of toxicity

Treatment:

Conservative ' Ochsner – Sherren Regimen'

It consists of,

Nil per oral

NG tube aspiration

TPR chart, BP chart

Marking the mass to identify the progress

Antibiotics

IV fluids

Analgesics

With in 48 to 72 hours mass reduce in site and symptoms improve , appetite regain

Interval appendicectomy planned after 6 weeks.

Criteria to discontinue,

When patient become more toxic (tachycardia,high fever)

Persistent symptoms like vomiting and abdominal pain.

Contraindications for ochsnersherren regimen,

1. When diagnosis in doubt
2. Acute appendicitis in children and elderly
3. In burst, gangrenous appendicitis
4. Patients in whom diffuse peritonitis sets in.

APPENDICULAR ABSCESS

It occurs due to the suppuration in an acute appendicitis or suppuration in an already formed appendicular mass.

Abscess commonly occur in retrocaecal region but often occurs in subcaecal ,preileal, lumbar, post ileal regions.

Pelvic abscess is also common after an attack of acute appendicitis

CLINICAL FEATURES

High grade fever associated with features of toxicity (high pulse rate , dehydration etc).

On examination : Tenderness present with smooth surface soft swelling and dull to percuss .Swelling usually lies towards right lateral region and lower side with clear upper margin but indistinct lower margin .

DIAGNOSIS :

USG confirm the diagnosis .

TREATMENT :

ANTIBIOTICS

EXTRAPERITONEAL DRAINAGE

Under GA ,incision is made in the lower lateral aspect of the swelling above the inguinal ligament.skin, external oblique is cut followed by opening of abscess cavity and pus is drained .CRD is kept through separate incision followed by wound closure .

Interval appendicectomy can be done after three months .

INCIDENTAL APPENDICECTOMY :

Removal of normal appendix is done at laparotomy for other condition .

It usually done for

1. Ladd's procedure
2. Doodleys colonic lavage
3. Munchausen syndrome

PSEUDO APPENDICITIS:

Appendicitis is due to acute ileitis following Yersinia infection.Commonly seen in crohn's disease

ACUTE APPENDICITIS IN INFANTS AND CHILDHOOD :

Constitutional disturbance are common in children

High grade fever ,tachycardia ,vomiting ,diarrhoea occurs

Elicitation of tenderness is difficult (a good technique is to palpate abdomen with the child's own hand).

Appendicular lump is very rare (due to short omentum and poor inflammatory response)

So early perforation is the role

ACUTE APPENDICITS IN PREGNANCY:

During pregnancy enlarged uterus pushes the cecum upward.(mimic like acute cholecystitis).

Most common in first and second trimester.

Classical presentation is not seen .

Carefull history and positive rovsing's sign helps to made the diagnosis .

Risk of premature labour and fetal death increases if untreated .

Appendicectomy usually done in second trimester.

SCORING SYSTEM IN APPENDICITS :

ALVARADO SCORING (1986):

Migratory pain	-	1
Anorexia	-	1
Nausea and vomiting	-	1
Tenderness in RIF	-	2
Rebound tenderness	-	1
Elevated temperature	-	1
Leucocytosis (TC>10000)	-	2
Shift to left with neutrophilia	-	1

Total score 10 score less than 5:Not sure

Score between 5-6:compatible

Score between 6-9: probable

Score more than 9 :confirmed

others scoring system

1.Tzanakis scoring system

2.RIPASA scoring system

3.Anderson scoring system

PERFORATION PERITONITIS

3 STAGES.....

I STAGE:

STAGE OF PERITONISM

Lasts for 6 hours

Leakage of gastric juice into peritoneal cavity leads to peritoneal irritation (chemical peritonitis)

It is characterized by

1) Sudden onset of pain
2) Muscle guarding in upper half of the right rectus muscle (later phase pain may gradually gravitate down along the right paracolic gutter... pain may felt in RIF , one may misunderstand the pain is due to acute appendicitis)

II STAGE:

STAGE OF REACTION

The irritant fluid become diluted with the peritoneal exudate. The patient feels comfortable and nothing is more deplorable than the attending doctor sharing the patient's comfort.

Symptoms relieved but the signs are more pronounced.

Signs are :

1) Muscular rigidity continued to be present
2) Obliteration of liver dullness

3) Shifting dullness

4) Rectal examination reveals tenderness in rectovesical/rectouterine pouch

5) X-ray abdomen erect shows air under diaphragm in 70% of cases.

III STAGE:

STAGE OF DIFFUSE PERITONITIS

Stage of grave prognosis.... characterized by,

1)The pinched and anxious face, sunken eyes and hollow cheeks – so called facieshippocratica

2)Raising pulse rate which is low in volume and tension

3)persistant vomiting

4)'Board – like ' Rigidity..... imminent death.

INTESTINAL OBSTRUCTION

Three main cardinal features of intestinal obstruction are

1)Intestinal colic

2)Vomiting

3)Distension

INESTINAL COLIC:

In case of jejunum or upper part of ileumcolic appears in waves at interval of 3 – 5 minutes, which lasts for about 30 seconds.

In case of terminal ileum colics appear in interval of 8 – 10 minutes.

Site of pain indicates the site of obstruction

Small intestinal cramps - epigastrium/ umbilical region

Colonic cramps - hypogastrium

VOMITING:

Constant symptom

Frequency of vomiting depends on site of obstruction

At first vomitus is the gastric content- ingested food particles & fluids

Then duodenal contents- contains bile

Lastly contents of bowel above the site of obstruction

Virtually it takes 3 to 4 days in complete intestinal obstruction to vomit become faeculant..... this is a grave sign.

DISTENSION:

It must be confessed that this may not be very early sign. But for an experienced surgeon distension may be evident in the early stage and is considered to be a diagnostic feature.

Distension may be

Central - small bowel obstruction

Peripheral - large gut obstruction

Regional - volvulus of sigmoid/caecum

ABSOLUTE CONSTIPATION :

Absence of history of recent constipation does not exclude the diagnosis of intestinal obstruction.

The patient might have moved his bowel in the morning, the symptom may start in the afternoon, for constipation to arrive as a significant sign one may wait for 24 hours.

Absolute constipation (failure of passage of both faeces and flatus) appears late.

In some cases of intestinal obstruction accompanied by diarrhoea.

1)mesenteric vascular occlusion

2)Richter's hernia

3)Adhesive obstruction with pelvic collection

DEHYDRATION:

Higher the site of obstruction – more will be the dehydration

Terminal ileal obstruction – distension earlier, dehydration late.

Jejunal obstruction – dehydration earlier, distension late.

TREATMENT PLAN

GOLDEN RULE :

Majority of the severe abdominal pain who has been previously fairly well and lasts longer than six hours are caused by surgical conditions.

Early diagnosis improves the recovery

Decreases the mortality

Reduces the hospital stay and avoids infections

Reduces the long term complications

RISK FACTORS FOR ADMISSION

1.Abdominal pain of less than 48 hours duration

2.Abdominal pain followed by vomiting

3.H/o recent trauma,operation or haemorrhage

4.Abnormal physical signs

5.H/o loss or impairment of consciousness

6.Extremes of age.

The important abdominal findings in acute abdomen are:

1.Guarding/Rigidity

2.Tenderness:Rebound tenderness

3.Tender masses and external hernias

4.Bowelsounds:absent/Hyperactive

5.rectal tenderness/ mass.

CATEGORY

The emergency surgery patients can be categorized into three groups.

GROUP I:

Needs immediate resuscitation and surgery hand in hand

Eg: Leaking aortic aneurysms

GROUP II:

Immediate resuscitation as the first phase

Surgical management then the general condition of the patient becomes stable

Eg: perforated peptic ulcer, intestinal obstruction

GROUP III:

Immediate surgery not required

Needs close observation

Surgery may planned later days according to the condition

Eg: acute cholecystitis. Acute pancreatitis

RESUSCITATION:

Watch for signs of dehydration- oliguria, tachycardia, hypotension

Total body electrolyte is much reduced

Elevated blood urea, creatinine suggests onset of renal failure

Abnormally high haemoglobin concentration

Adequate resuscitation by using IVF

1. Infusion of ringer lactate/ normal saline
2. Potassium supplements

If renal failure occurs:

Invasive monitoring using central venous catheterization is needed.

Resuscitation should continue throughout the surgery

Loss into third space will continue for some days after surgery

PRINCIPLES OF SURGERY IN ACUTE ABDOMEN:

1. Main objective is to save life.
2. Avoid too complicated surgery
3. Adequate postoperative care
4. Antibiotic prophylaxis

Access to the abdominal cavity is through a midline incision/ or may be depend on specific etiologyEg. Acute appendicitis

When the abdomen is opened - note the following,

1. Prescence of free fluid,blood or pus
2. Position of omentum
3. Presence of mass or adhesion

except in cases of a danger of spreading of infection in appendicitis, full laparatomy should be done and viscera may be fully inspected.

Type of operative proceedings may depend upon the diagnosis

Judicious drainage and peritoneal lavage are done following septic surgery.

WOUND CLOSURE:

1. Mass closure (usually)
2. Laparostomy (in cases which need further laparatomy)

POST OPERATIVE COMPLICATIONS:

1. Chest and urinary tract infections
2. DVT
3. Pulmonary embolism

Also other complications specific to surgery such as septic shock, reactionary haemorrhage, anastamotic dehiscence etc., should also be kept in mind.

MATERIALS AND METHODS

The study material comprises the detailed clinical study of 250 consecutively operated cases of acute abdomen of different etiology.

The materials for the clinical studies were collected from the cases admitted in the emergency department of Tirunelveli medical college hospital, Tirunelveli, in the period between January 2013 to November 2013.

For all the cases admitted with non traumatic abdominal pain are included in the study. The accurate history taken and detailed clinical examinations done. The following minimal investigations done in selected patients,

1. Complete blood count
2. Urine routeine
3. Blood sugar, urea, creatinine& electrolytes
4. Blood grouping and typing
5. Liver function test
6. Bleeding time and clotting time
7. X- ray chest, X – ray abdomen erect
8. Ultrasonogram

After an adequate preoperative preparation patients subjected for laparatomy. The operative findings and operative managements are noted at laparatomy. Patient followed for immediate postop and for atleast 4 months to note the compications and success of treatment.

INCLUSION CRITERIA:

All the non traumatic abdominal pain patients who underwent surgical treatment included in this study.

1. Acute appendicitis
2. Perforation peritonitis of various etiologies
3. Intestinal obstruction of various etiologies

EXCLUSION CRITERIA:

1. Traumatic causes of acute abdomen
2. Medical causes of acute abdomen
3. Paediatric causes
4. Obstretic and Gynaecological causes
5. Urological causes
6. Acute abdomen managed conservatively.

OBSERVATION AND RESULTS

TABLE-I ETIOLOGY OF ACUTE ABDOMEN

S.NO.	ETIOLOGY	NO.OF CASES	PERCENTAGE
1	Acute appendicitis	116	46.4%
2	Perforation peritonitis	77	30.8%
	Duodenal perforation	56	
	Ileal perforation	6	
	Gastric perforation	9	
	Colonic perforation	1	
	Jejunal perforation	5	
3	Intestinal obstruction	57	22.8%
	Inguinal hernia obstruction	14	
	Adhesive obstruction	22	
	Sigmoid volvulus	1	
	Incisional hernia obstruction	5	
	Umbilical hernia obstruction	4	
	Ileal stricture	1	
	Growth bowel	9	
	Mesentric vascular ischemia	1	

Interpretation:

In our study, acute appendicitis is the commonest cause of acute abdomen in our emergency department, which consists of 116 cases(46.4%). Perforation peritonitis is the next common emergency, among which duodenal ulcer perforaton is commonest. Intestinal obstruction is less common than perforation peritonitis.

ETIOLOGY OF ACUTE ABDOMEN

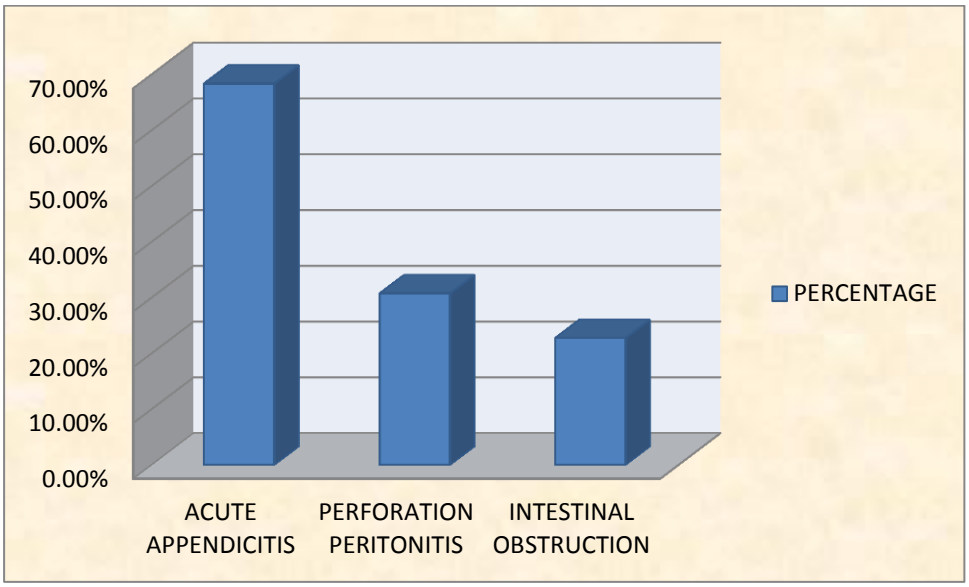


TABLE-II AGE DISTRIBUTION -- IN ACUTE ABDOMEN

AGE	APPENDICITIS	PERFORATIVE PERITONITIS	INTESTINAL OBSTRUCTION	TOTAL	PERCENTAGE
<20	41	1	0	42	16.80%
21-30	41	3	1	45	18%
31-40	18	13	7	38	15.20%
41-50	8	27	14	49	19.60%
51-60	4	12	17	34	13.60%
>60	3	21	18	42	16.80%

Interpretation:

In our study, commonest age group affected was 41 to 50 years (19.60%) of49 cases, which predominantly due to perforation peritonitis, followed by 21 to 30 years (18%) of 45 cases dominated by acute appendicitis.

AGE DISTRIBUTION IN ACUTE ABDOMEN

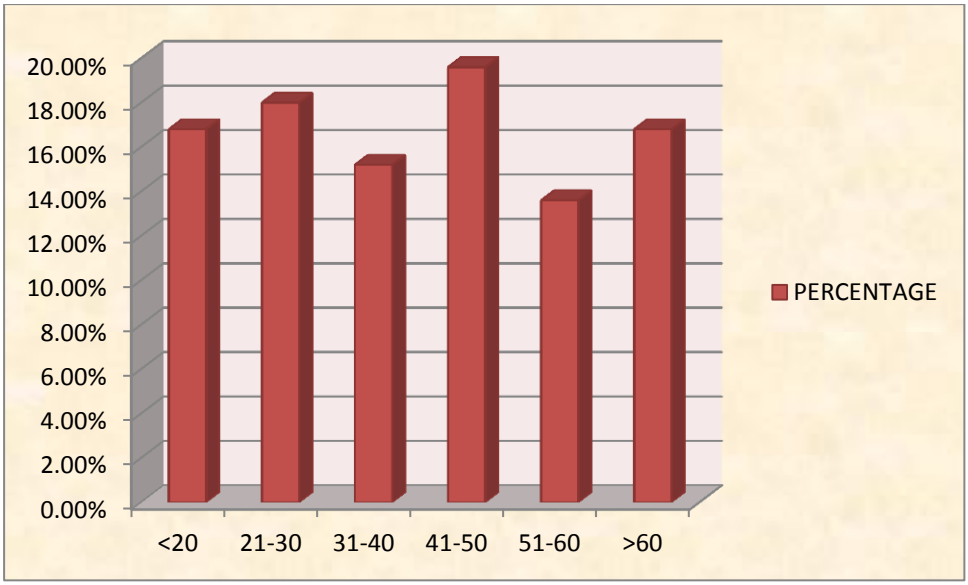


TABLE-III SEX DISTRIBUTION -- IN ACUTE ABDOMEN

	APPENDICITIS	PERFORATION PERITONITIS	INTESTINAL OBSTRUCTION	TOTAL	PERCENTAGE
MALES	72	61	38	171	68.40%
FEMALES	44	16	19	79	31.60%
TOTAL	116	77	57	250	100%

Interpretation:

In our study, out of250 cases of acute abdomen male sex constitutes 171 cases (68.40%), females were 79 cases (31.60%).

In case of acute appendicitis males were 72 and females were 44 cases. In perforation peritonitis males were 61 and females were 16. In cases of intestinal obstruction males were 38 and females were 19.

Male to female ratio is 2.2 :1 with the male predominance

SEX DISTRIBUTION IN ACUTE ABDOMEN

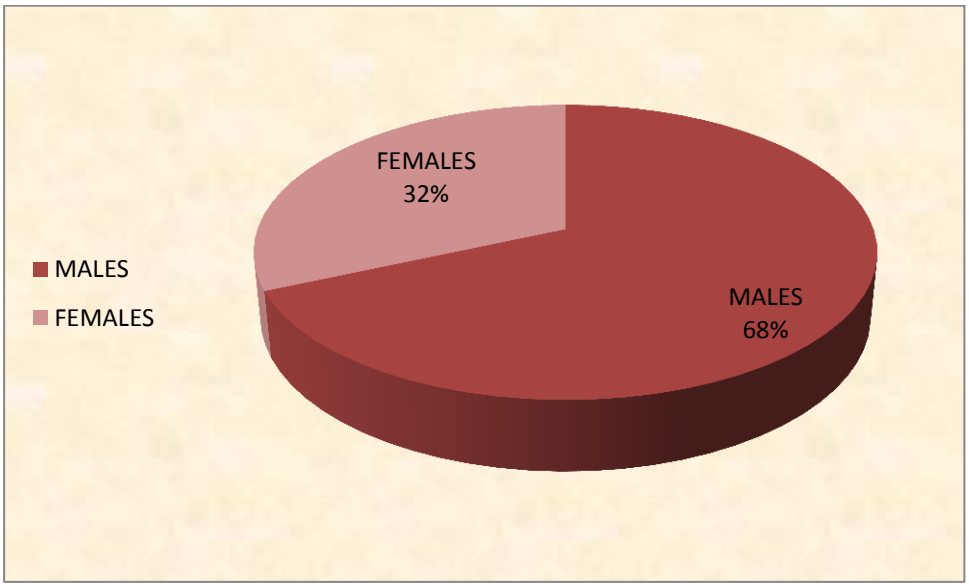


TABLE-IV ANALYSIS OF SYMPTOMS IN RELATION TO ETIOLOGY

ETIOLOGY	VOMITING	FEVER	CONSTIPATION	DISTENTION	OTHERS
APPENDICITIS	71	45	24	8	02
PERFORATION PERITONITIS	33	12	46	28	08
INTESTINAL OBSTRUCTION	41	7	34	29	05
TOTAL	145	64	104	65	15

Interpretation:

In acute abdomen, cases patient presents with acute abdomen in all cases. In our study next to the abdominal pain, vomiting is the commonest presentation in acute abdomen, which consists of 145 cases out of 250 cases.

ANALYSIS OF SYMPTOMS IN RELATION TO ETIOLOGY

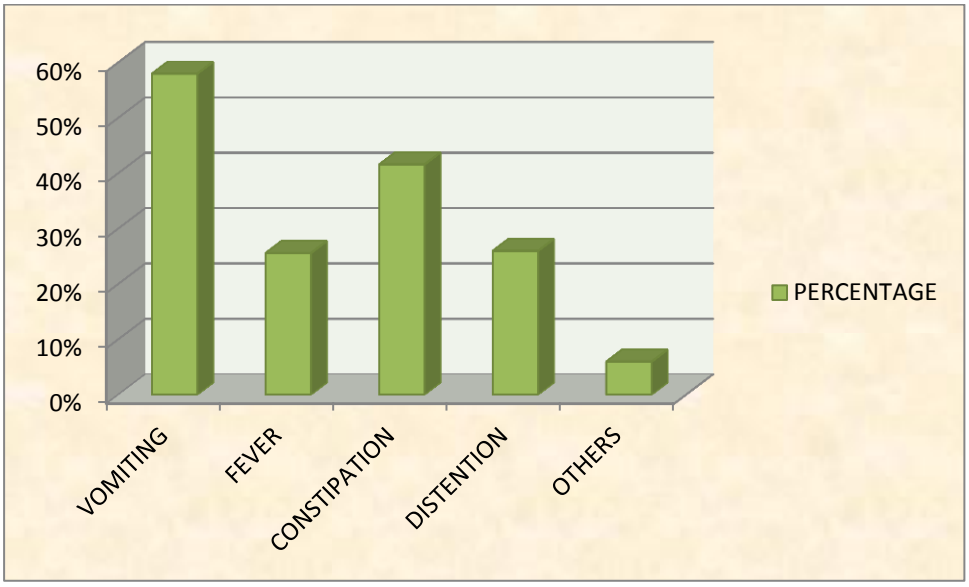


TABLE-V CLINICAL SIGNS OF ACUTE ABDOMEN IN RELATION TO ETIOLOGY

ETIOLOGY	TACHYCARDIA	FEVER	DEHYDRATION	DISTENTION	GUARDING/RIGIDITY	ALTERED BOWEL SOUNDS
PERFORATION PERITONITIS	54	12	28	28	67	10
ACUTE APPENDICITIS	83	42	6	8	63	8
OBSTRUCTION	49	14	19	42	42	12

Interpretation:

Abdomin tenderness seen in all cases of acute abdomen.

In our study, out of 250 cases studied tachycardia is the commonest sign consists of 186 cases. Next to that is abdominal guarding, Which consists of 172 cases.

SIGNS OF ACUTE ABDOMEN IN RELATION TO ETIOLOGY

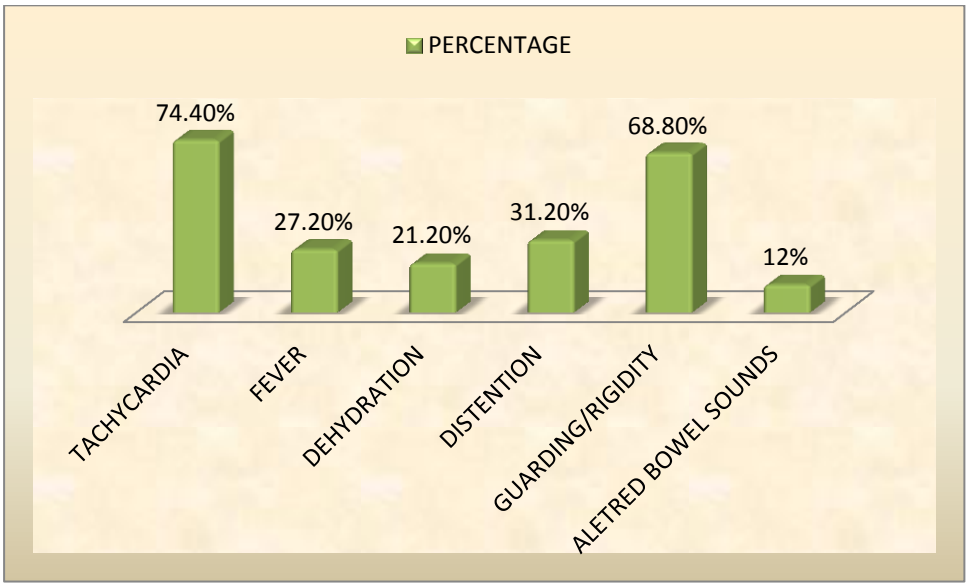


TABLE-VI CORRELATION OF PREOPERATIVE VERSUS INTRAOPERATIVE DIAGNOSIS

ETIOLOGY	NO.OF CASES	CORRECT DIAGNOSIS	WRONG DIAGNOSIS
ACUTE APPENDICITIS	116	98	18 (APPENDICULAR PERFORATION-12 EARLY MASS FORMATION-6)
PERFORATION PERITONITIS	77	75	02 (INTESTINAL OBSTRUCTION-2)
INTESTINAL OBSTRUCTION	57	54	03 (MESENTRIC VASCULAR ISCHEMIA-1, PERFORATION PERITONITIS-2)

In our study correct clinical diagnosis consists of 91%.

Out of 116 cases of acute appendicitis 98 were acute appendicitis, 12 cases were appendicular perforation, 6 cases were early mass formation. Out of 77 cases of perforation peritonitis 75 were perforation peritonitis , 2 cases were intestinal obstruction. Out of 57 cases of intestinal obstruction 54 were obstruction, 2 cases were perforation peritonitis, 1 case was mesenteric vascular ischemia.

TABLE-VII OPERATIVE TREATMENT – ACUTE ABDOMEN

ETIOLOGY	OPERATIVE TREATMENT	NO.OF CASES	PERCENTAGE
ACUTE APPENDICITIS	EMERGENCY OPEN APPENDICECTOMY	116	100%
DUODENAL PERFORATION	CLOSURE OF PERFORATION WITH LIVE OMENTAL PATCH	56	100%
ILEAL PERFORATION	RESECTION AND ANASTOMOSIS	3	50%
	PRIMARY CLOSURE	3	50%
GASTRIC PERFORATION	CLOSURE OF PERFORATION WITH LIVE OMENTAL PATCH	9	100%
COLONIC PERFORATION	PRIMARY CLOSURE	1	100%
JEJUNAL PERFORATION	RESECTION AND ANASTOMOSIS	3	60%

	PRIMARY CLOSURE	2	40%
ADHESIVE OBSTRUCTION	BAND RELEASE	22	100%
OBSTRUCTED INGUINAL HERNIA	RELEASE AND REPAIR	14	100%
UMBILICAL HERNIA	RESECTION AND ANASTOMOSIS	2	50%
	RELEASE AND REPAIR	2	50%
INCISIONAL HERNIA	RELEASE AND REPAIR	3	60%
	RESECTION AND ANASTOMOSIS	2	40%
MESENTRIC VASCULAR ISCHEMIA	RESECTION AND ANASTOMOSIS	1	100%
ILEAL STRICTURE	RESECTION AND ANASTOMOSIS	1	100%
CA RECTUM	COLOSTOMY	3	100%

CA HEPATIC FLEXURE	RIGHT HEMICOLECTOMY	2	100%
CA ASCENDING COLON	RIGHT HEMICOLECTOMY	1	100%
CA TRANSVERSE COLON	RESECTION AND ANASTOMOSIS	1	100%
CA SIGMOID COLON	RESECTION AND ANASTOMOSIS	2	100%
SIGMOID VOLVULUS	RESECTION AND ANASTOMOSIS	1	100%

Interpretation:

In our study shows the commonly doing surgery in emergency ward was open appendicectomy, which accounts 46.4%. The next common surgery was perforation closure with live omental patch.

TABLE-VIII POST OPERATIVE COMPLICATIONS

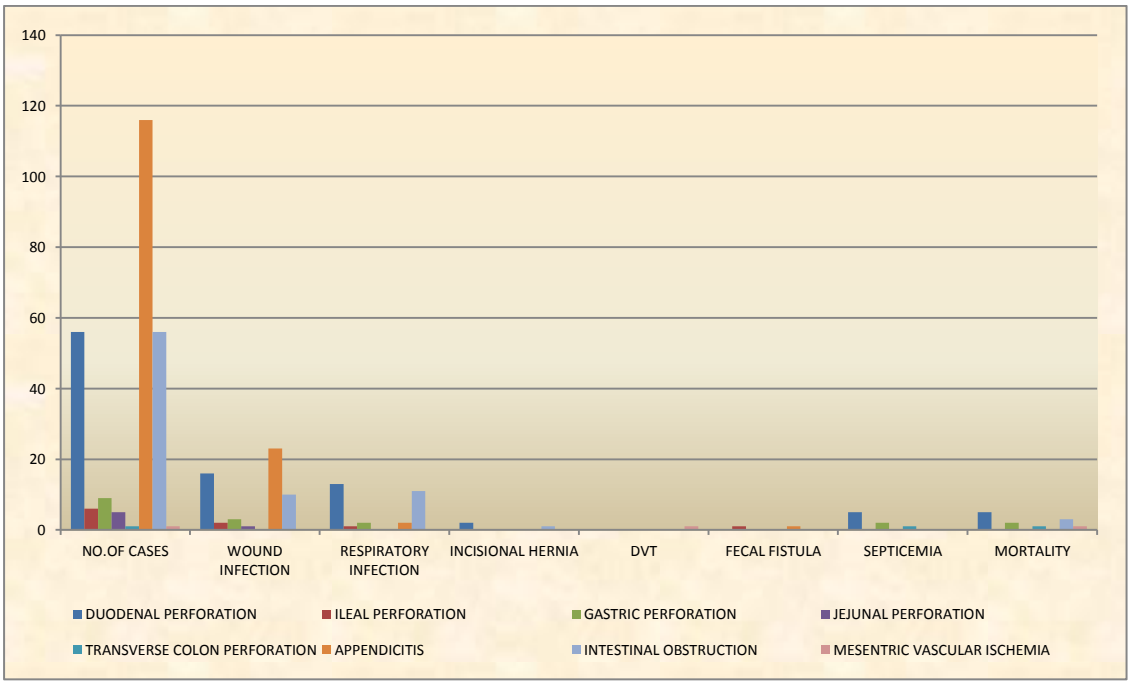
ETIOLOGY	NO.OF CASES	WOUND INFECTION	RESPIRATORY INFECTION	INCISIONAL HERNIA	DVT	FECAL FISTULA	SEPTICEMIA	MORTALITY
DUODENAL PERFORATION	56	16	13	2	0	0	5	5
ILEAL PERFORATION	6	2	1	0	0	1	0	0
GASTRIC PERFORATION	9	3	2	0	0	0	2	2
JEJUNAL PERFORATION	5	1	0	0	0	0	0	0
TRANSVERSE COLON PERFORATION	1	0	0	0	0	0	1	1
APPENDICITIS	116	23	2	0	0	1	0	0
INTESTINAL OBSTRUCTION	56	10	11	1	1	0	1	3
MESENTRIC VASCULAR ISCHEMIA	1	0	0	0	0	0	0	1
TOTAL	250	55	29	3	1	2	9	12

Interpretation :

In our study, post operative complication of acute abdomen was wound infection , which accounts for 55 cases (22%). Next commonest complication was respiratory tract infection seen in 29 cases (11.6%) of acute abdomen.

Mortality seen in 12 cases (4.8%) which is predominantly due to duodenal ulcer perforation consists of 5 cases. 3 cases were due to intestinal obstruction. 2 cases due to gastric ulcer perforation.1 case of isolated transverse colonic perforation, 1 case of mesentric vascular ischemia.

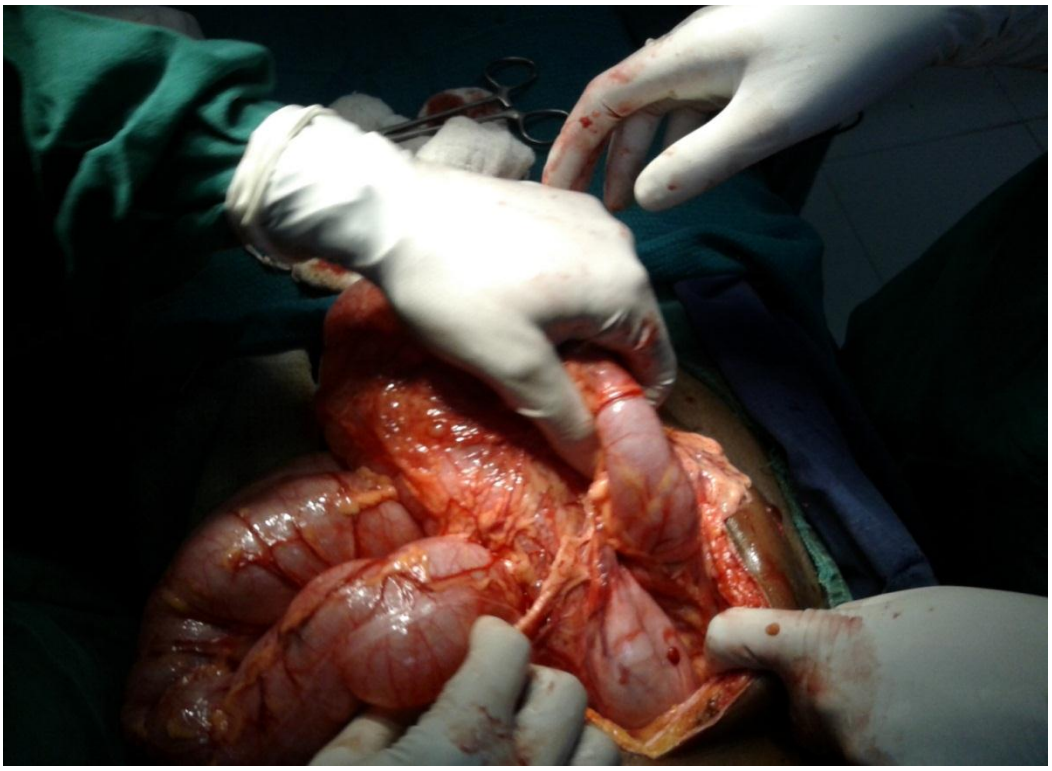
POST OPERATIVE COMPLICATIONS IN ACUTE ABDOMEN



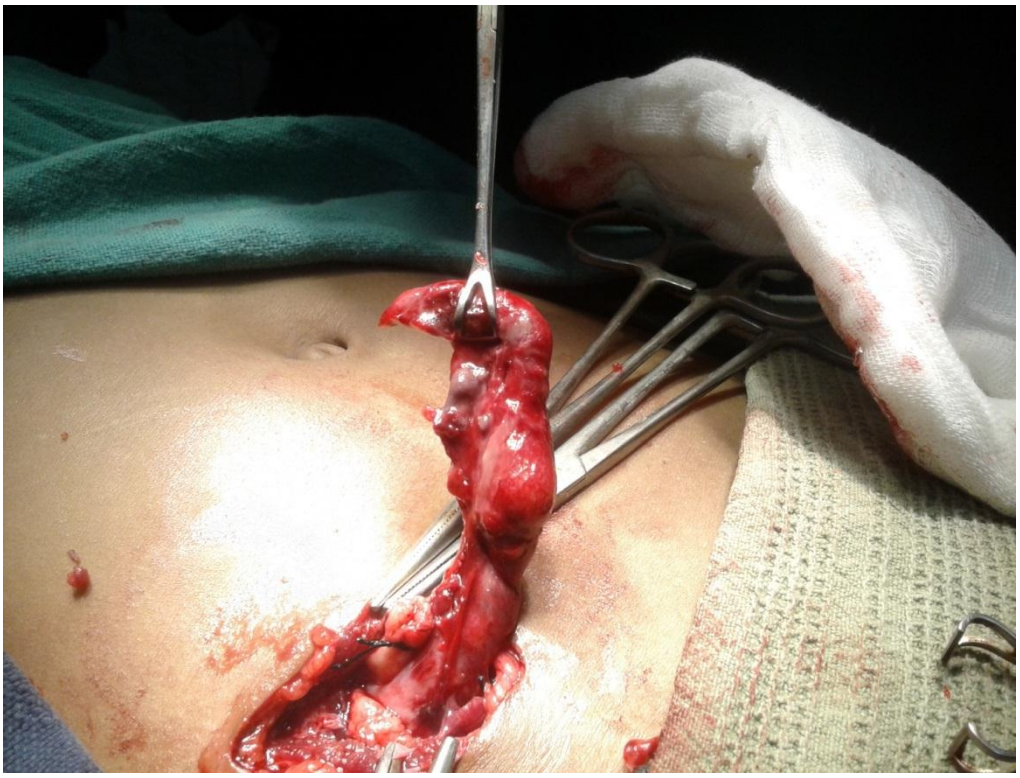
SIGMOID VOLVULUS

OBSTRUCTED RIGHT INGUINAL HERNIA

BAND ADHESIONS

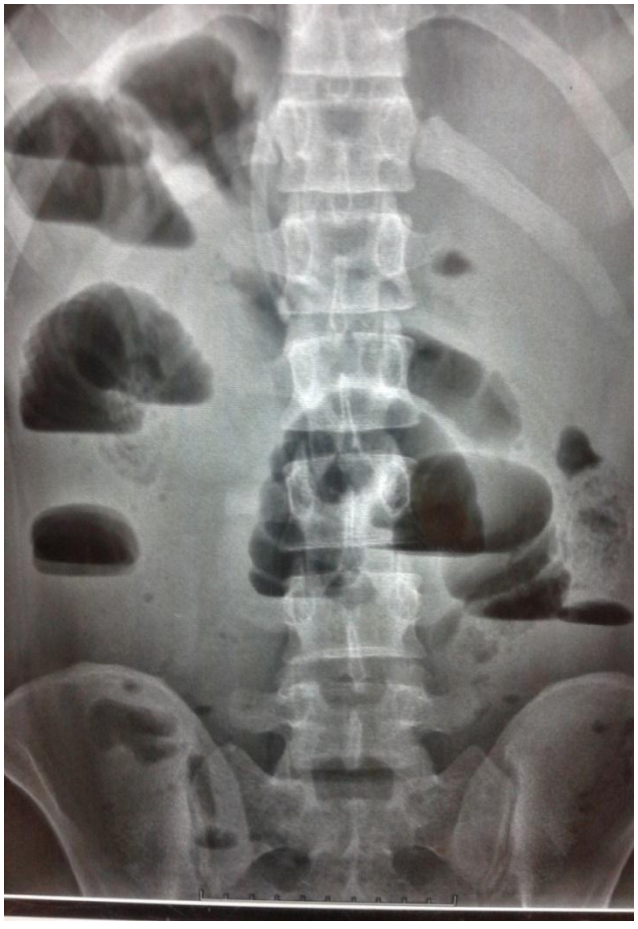


OPEN APPENDICECTOMY

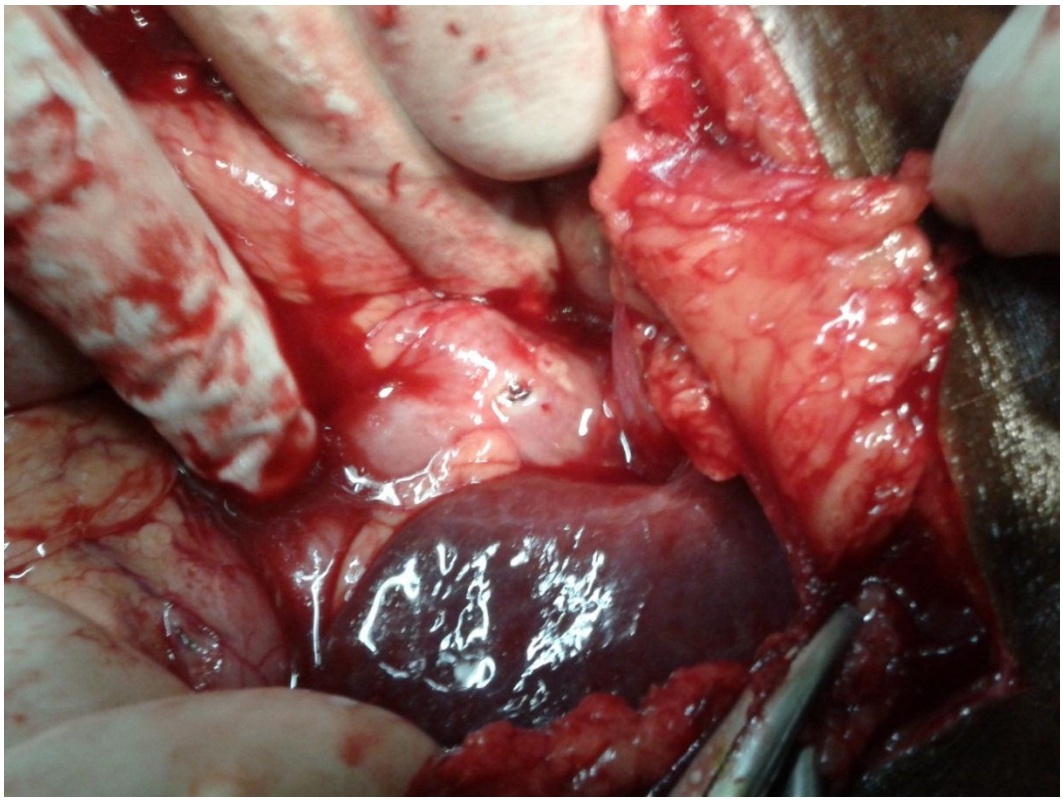


X – RAY LEFT LATERAL DECUBITUS VIEW SHOWS PNEUMOPERITONEUM

X-RAY MULTIPLE AIR FLUID LEVELS

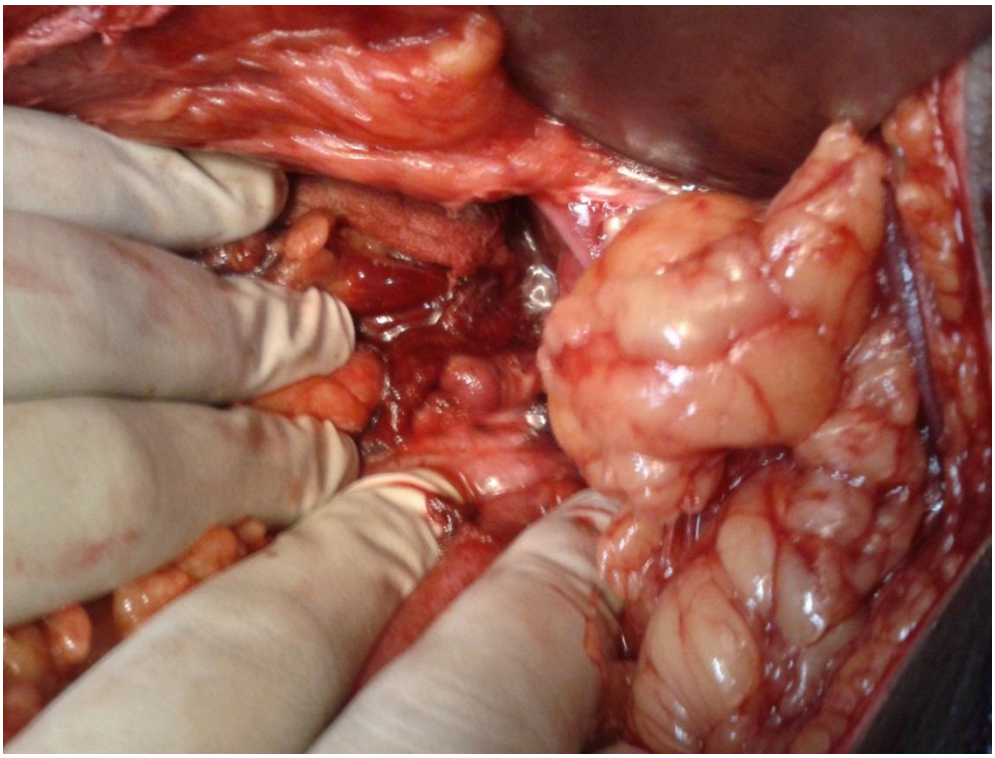


DUODENAL PERFORATION



GASTRIC PERFORATION

CARCINOMA HEPATIC FLEXURE



WOUND INFECTION WITH DEHISCENCE

DISCUSSION

The results obtained in the present study were compared with previously conducted similar studies.

ACUTE APPENDICITIS :

Table IX : Age incidence appendicitis

	Per Jessa et al (1981)	Bhatnagar et al (1978)	Present Study
< 20	33.80%	33%	42(31.58%)
21 – 30	26.78	44%	41(35.3%)
31-40	7.04%	11%	18(15.5)
41-50	4.23%	6%	8(6.8)
> 50	23.24%	3%	7(6.03)

Interpretation:

Appendicitis is uncommom in the first decade of life and rare below the age of 3 yrs. The peak incidence is between 15-30 yrs of age.

In our study there were 42 cases below 20yrs (36.2%) 41 cases between 21-30 yrs (35.3%) 18 cases between 31-40yrs (15.5%) 8 cases between 41-50yrs (6.8%) and 7cas$es > 50$ yrs (6.03%).

b) Sex incidence:

In our study of 116 cases of acute appendicitis there were 72 male case (62.06%) and 44 female cases (37.9) the sex ratio male to female was 2.8 : 1.

Which was compared to Bhatnagar reports at 3 : 1.

Table X : Clinical features correlation with other studies in appendicitis

	Pain Abdomen	Vomiting	Constipation	Fever
John Berry et al (1984)	100%	37.50%	4.10%	17.90%
Bhatnagar et al (1978)	100%	67.00%	13%	64%
Present study	100%	61.2%	20.7%	38.8%

Interpretation :

In our study of 116 cases of acute appendicitis the presentation were as pain abdomen (100%), vomiting (61.2%), constipation (20.7%) and fever (38.8%) which were compared with John Berry et al and Bhatnagar et al Study.

PERFORATION PERITONITIS:

Table XI :Age incidence in perforation of hollow viscus

Age group	Dandapat et al (1991) 340 cases n(%)	Present study 77 cases n(%)
< 20	50(14.71)	1(1.2)
21-30	78 (22.94)	3(3.8)
31-40	130 (38.24)	13(16.8)
> 40	82 (24.12)	60(77.9)

Interpretation :

Dandapat et al (1991) studied 340 cases of perforation and analysed the age incidence as < 20 year (14.71%) 21-30 year (22.94%), 31-40 year were (38.24%) and > 40 years (24.12%).

In our study of 77 Hollow viscus perforation, in 20 years age group were 1(1.2%), 21-30 year 3 patient (3.8%), 31-40 year were 13 cases (16.8) and > 40 years were 60 (77.9%) comparable to previous study.

Table XII :Sex incidence in perforation of hollow viscus

	Dandapat et al 340 cases(1991)	**Present study 77 cases**
Male	304 (89.41%)	61 (79.2%)
Female	36(10.59%)	16(20.8%)
M:F	8.4:1	4:1

Interpretation:

Dandapat et al (1991) stated that out of 340 case there were 304 male patient (89.41 %) and 36 female patient (10.59%) with sex ratio of 8.4:1.

In out study of perforation there were 61male patients(79.2%) and 16 female patient(20.8%). In the sex ratio of 4:1.

Table XIII :Relation to aetiology in perforation of hollow viscus

	DCM Rao et at 28 (1984)46 cases	**Dandapat et al27 (1991)340 cases**	**Present study 77 cases**
D.U.P	20(43)	248(72.9)	56(72.7)
I.P	18(39)	25(7.3)	6(7.79)
G.U.P	6(13.3)	28(8.2)	9(11.6)
OTHERS	2(4.35)	39(11.47)	6(7.7)

Interpretation:

DCM Rao et al (1984) studied 46 cases and reported that D.U.P was (43%), I.P (39%) and G.U.P (13.3%)

In Dandapat et al 1991 stated 340 cases and reported that D.U.P was (72.9%), I.P(7.3%),G.U.P (8.2%)

In our study of 77 cases of hallow viscus perforation there were 56 cases of D.U.P (72.7%), 6 cases of I.P (7.79%), and 9 cases of G.U.P (11.6%)

Table XIV :Post operative complications in perforation of hollow viscus

	SK Nair et al (1981) 50 cases	**Present study 77 cases**
Wound infection	26(52%)	22(28.5%)
Respiratory infection	2(4%)	16(20.7%)
Incisional hernia	-	2(2.6%)
Faecal fistula	8(16%	1(1.3%)
septicemia	4(8%)	9(11.6%)

Interpretation:

S.K.Nair et al in 1981 studied post operative complication of hollow viscus perforation thee were wound infection in 52%, respiratory infection 4%,faecal fistula in 16% and septicemia in 8%

In our study of 77 cases of hollow viscus perforation there were 22 cases with wound infection(28.5%), respiratory infection in 16 cases(20.7%), faecal fistula in 1 case (1.3%), and septicemia in 9 cases (11.6%).

Table XV : Correlation of mortality in hollow viscus perforation:

	M.C. Dandapat et al (1991)	**Present study**
Total cases	228	77
mortality	24(10.52%)	8(10.4%)

Interpretation:

In our study of 77 cases of perforation peritonitis, 8 cases were expired in 10.4% which was comparable to other studies.

INTESTINAL OBSTRUCTION :

a)Age incidence :

In the present series out of 57 intestinal obstruction the age distribution in the form of $< 30 years$1 (1.8%) 31-40 years 7 cases (12.3%), 41-50 yrs consist of 14 (24.6%) , 51-60 yrs with 17 cases (29.8%) $>$ 60 yrs 18 cases (31.6%).

b) Sex incidence :

In our study out of 57 cases of intestinal obstruction there were 38 male patient (66.6%) and 19 female patient (33.3%) with male : ratio of 2 : 1

Which was compared to the study ofShakeeb et al (1975) who has stated the sex ratio at 3 : 1.K.P. Rao at al (1982) stated at 3.7:1.

Table XVI :Causes of intestinal obstruction

	Adhesions	**Hernia**	**Volvulus**
ShakeebSufian et al (1975)	32.7%	17.5%	-
Col, K.P.Rao et al(1982)			14.5%
Present study	22(38.6%)	14(24.6%)	1(1.8%)

Interpretation :

Shakeeb et al stated the various causes of intestinal obstruction at adhesion 32.7%, hernia, 17.5%, K.P.Rao et al stated valvulus (14.5%).

In the present study we had 22 cases of adhesions (38.6%), 14 cases of hernia (24.6%), 1 case of volvulus (1.8%)

Table XVII :Presentation of intestinal obstruction

	Pain abdomen	Vomiting	Constipation	Distention
E.S Palwe (1988)	100%	100%	76%	92%
Col, K.P.Rao et al (1982)	90%	78%	72%	22%
Budharaja S.N et al (1976)	95%	75%	50%	82%
Present study	11(100%)	11(100%)	9 (81.82%)	9 (81.82%)

Interpretation :

In our study the commonest presenting symptoms of intestinal obstruction was pain abdomen 100%, constipation (81.82%) and distention (81.82%).

Table XVIII :Mortality intestinal obstruction

	Mortality
Col, K.P. Rao (1982)	8.5%
G. McEnte D Pender (1987)	11.4%
E.S. Palwe (1988)	8%
Present study	4 (7.01)

Interpretation:

In our study of 57 cases of intestinal obstruction 4 patients expired in 7.01% which was comparable to other studies.

CONCLUSION

From our study following can be concluded:

1. The commonest acute abdominal emergency was acute appendicitis
2. The second commonest emergency was perforation peritonitis
3. The commonest age group affected was between 41 To 50 Years
4. There was a male predominance with the ratio of 2.2:1
5. The commonest symptom next to abdominal pain was vomiting.
6. The commonest clinical sign noted was tachycardia (abdominal tenderness seen in all cases)
7. The clinical accuracy in our study was 91%
8. Commonest surgical procedure done was emergency open appendicectomy, followed by perforation closure with live omental patch.
9. The commonest complication noted was wound infection with 22% of cases
10. Mortality in our study was 12 cases (4.8%) mostly due to perforation peritonitis.

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ANNEXURES

PROFORMA

Name : Occupation :

Age : Referral :

Sex : D.O.A :

I.P .No : D.O.D :

Residence :

PRESENT HISTORY:-

Pain :

Vomiting :

Fever :

Abdominal distension :

Loss of appetite/ loss of weight :

Dysphagia (solid/ liquid) :

Bowel habits :

Trauma :

NSAID use :

PAST HISTORY:-

H/O similar episodes in the past

Any previous surgeries

HT / DM/ Asthma/ TB/ Jaundice

PERSONAL HISTORY:

Veg / non veg

Smoking / alcohol intake

MENSTURAL HISTORY

GENERAL EXAMINATION:

Consciousness

Comfortable/ anxious/ restless/dysponeic

Hydration status

Anaemia/jaundice/cyanosis

Generalised lymphadenopathy

Pedal odema

VITAL SIGNS:

Pulse: B.P: Respiratory rate:

EXAMINATION OF ABDOMEN:

INSPECTION :

Shape (scaphoid / distended)

Movement with respiration

Umblicus (site & shape)

Flanks free / full

External injuries like bruises / abrasions

PALPATION:

Soft/ tense:

Tenderness:

Guarding: Rigidity:

Any mass palbable/ liver or spleen palpable

PERCUSSION:

Liver dullness obliterates

Fluid thrill / shifting dullness

AUSCULTATION:

Bowel sounds :

Four quadrant aspiration :

Examination of testis / scrotum :

Examination of renal angles :

Examination of supra clavicular fossa :

Per rectal examination :

Associated injuries

Chest / bone # / bladder urethral / rectal / soft tissue injury

INVESTIGATIONS:

Urine - albumin: sugar: deposits:

Blood -Hb%: PCV: TC: DC: Platelet:

Sugar: urea: creatinine: electrolytes: Amylase:

LFT:

BT : CT : Blood G&T:

X ray chest PA / abdomen erect / lateral decubitus view:

ECG

MANAGEMENT:

Provisional diagnosis :

Operative findings :

Procedure done :

Post op period :

Condition at discharge :

MASTER CHART

						SYMPTOMS					CLINICAL FINDINGS											
S.No	Name	Age	Sex	IP No	Diagnosis	Vomiting	Fever	Distension	Drug intake	Bowel habit	Temperature	Dehyderation	Tachycardia	Hypotension	Distension	Tenderness	Guarding / Rigidity	BS	PR	OPERATIVE FINDINGS	PROCEDURES	FOLLOW UP
1	rajappan	28	M	6064	acute appendicites	-	+	-	-	N	+	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
2	Ponnusamy	45	M	5902	acute appendicites	+	+	-	-	C	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged by 13th POD
3	mooka rajan	40	M	6234	acute appendicites	+	-	-	-	C	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
4	adurva devi	19	F	6699	acute appendicites	+	-	-	-	N	-	-	-	-	-	+	-	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD
5	murugan	28	M	7134	acute appendicites	-	+	-	-	N	+	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged on 17th POD
6	jeniffer	13	F	7313	acute appendicites	+	+	+	-	C	+	-	-	-	+	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
7	shanmuga devi	68	F	8076	acute appendicites	+	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
8	manju	13	F	8521	acute appendicites	-	-	-	-	C	-	-	-	-	-	+	-	+	N	appendiculae perforation	open appendicectomy	discharged on 6th POD
9	guruselvan	20	M	8809	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged by 16th POD
10	nisha	14	F	8927	acute appendicites	-	-	-	-	D	-	+	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
11	subramani	26	M	9300	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
12	ranjith immanuel	23	M	9897	acute appendicites	-	+	-	-	N	+	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
13	ayyappan	17	M	10161	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
14	sengamalai udaiyar	33	M	10582	acute appendicites	+	-	-	-	C	-	-	+	-	-	+	+	+	N	early mass formation	open appendicectomy	enterocutaneous filstla developed. Treated conservatively and dischated by 28 th day.
15	mathiazhagan	24	M	10877	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
16	nirmala	17	F	11033	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
17	priyadarshini	19	F	12146	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD

18	raja	15	M	12247	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged by 13th POD
19	ramalakshmi	23	M	12931	acute appendicites	-	-	-	-	C	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
20	sivavankar	13	F	12937	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD
21	sivaraman	21	M	13341	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
22	santhana sivakumar	13	F	13868	acute appendicites	+	-	-	-	D	-	+	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
23	reshma	15	F	13818	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 8th POD
24	paul raj	28	M	14120	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection +, treated and dischared by 14 POD
25	mary	40	F	14411	acute appendicites	-	+	-	-	N	+	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
26	lakshmana perumal	32	M	14461	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged by 16th POD
27	padma	57	F	14119	acute appendicites	+	+	-	-	C	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
28	samuel	31	M	14897	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	early mass formation	open appendicectomy	wound infection, treated conservatively, discharged by 15th POD
29	anandha raj	15	M	15939	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
30	karuppasamy	30	M	15993	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
31	esakkiammal	65	F	16466	acute appendicites	-	+	+	-	C	+	-	+	-	+	+	+	+	N	inflammed appendix	open appendicectomy	respiratory infection, treated conservatively, discharged by 14 th POD
32	Venkatesh	13	M	16644	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
33	murugan	20	M	17400	acute appendicites	+	+	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged by 17th POD
34	ambika	23	F	17409	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD
35	pandy	35	F	17469	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
36	petchiammal	25	F	18177	acute appendicites	+	+	+	-	C	+	-	+	-	+	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
37	krishnammal	50	F	18382	acute appendicites	-	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	wound infection, treted conservatively, discharged by 17th POD
38	thirumalai kumar	30	M	18445	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD

39	abdul bhuhari	34	M	18551	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively, discharged by 17th POD
40	maharajan	18	M	18596	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
41	manikandan	17	M	18788	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD
42	velammal	35	F	18924	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
43	vinoth kumar	30	M	19145	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
44	ganesan	25	M	15635	acute appendicites	-	+	-	-	N	+	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
45	thoppuraj	29	M	19891	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
46	karthik	21	M	25036	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD
47	vadakasi	21	M	20268	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
48	robin	13	M	20928	acute appendicites	+	-	-	-	D	-	+	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
49	rajamani	55	M	21036	acute appendicites	+	+	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 8th POD
50	azhagu	40	M	21823	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	appendicular perforation	open appendicectomy	wound infection, treated conservatively, discharged by 20th POD
51	ragiv	25	M	22766	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
52	balakumar	21	M	22789	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
53	krishna kumari	23	F	23818	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
54	petchiammal	16	F	23913	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
55	paramasivan	48	M	24084	acute appendicites	-	+	+	-	C	+	-	+	-	+	+	+	+	N	inflammed appendix	open appendicectomy	wound infection, treated conservatively,discharged by 14th POD
56	udayakumar	31	M	22978	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	early mass formation	open appendicectomy	discharged on 6th POD
57	valutha	19	F	24721	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 9th POD
58	mariyam	16	F	25551	acute appendicites	+	+	-	-	C	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
59	selvarani	45	F	25796	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	Respiratory infection, treated conservatively,discharged on 17th POD
60	seeniselvi	17	F	25909	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD

61	balakrishna	22	M	26215	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
62	fathima	34	F	26284	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	diacharged on 4 th POD
63	anandhi	40	F	27132	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	doscharged by 5 th POD
64	thilagan	25	M	27584	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 3rd POD
65	balamurugan	14	M	28674	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	diachaged on 8th POD
66	vijayaraj	19	M	28752	acute appendicites	+	-	-	-	N	-	+	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection,treated conservatively,discharged by 13 th POD
67	sevlaraj	22	M	30387	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	dischaged on 4 th POD
68	issac	15	M	30591	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
69	subbulakshmi	58	F	30842	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on ^th POD
70	rajkumar	29	F	31157	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	early mass formation	open appendicectomy	discharged on 5th POD
71	pandian	41	M	24843	acute appendicites	+	+	+	+	C	+	-	+	-	+	+	+	+	N	inflammed appendix	open appendicectomy	wound infection,treated conservatively,discharged by 12 th POD
72	muthusudalaimani	14	M	2104	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
73	sathia	14	F	1869	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
74	sundaraj	50	M	1689	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
75	subbulakshmi	25	F	1675	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
76	ponraj	24	M	1031	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
77	arumugam	20	M	631	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection,treated conservatively,discharged by 14 th POD
78	thandukumar	19	M	622	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
79	muthiah	22	M	2467	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	appendicular perforation	open appendicectomy	wound infection,treated conservatively,discharged by 13 th POD
80	subburajan	21	M	2968	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
81	indumathy	14	F	3038	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
82	selvam	17	M	3127	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
83	sabariammal	22	F	3124	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD

84	raja	25	M	3081	acute appendicites	+	-	-	-	N	-	+	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
85	murugan	27	M	3466	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
86	patchi muthu	48	M	3521	acute appendicites	+	-	+	+	C	-	-	+	-	+	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
87	kannan	32	M	3584	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
88	muthumariyal	30	F	5325	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
89	sridevi	25	F	43518	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	appendicular perforation	open appendicectomy	wound gaping.. Treated conservatively and discharged by 18th POD
90	deepa rani	18	F	26586	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
91	pornappa narayanan	22	M	32559	acute appendicites	-	+	-	-	N	+	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
92	thomas	16	M	33947	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	early mass formation	open appendicectomy	wound infection, treated conservatively, discharged by 20th POD
93	ahamed ibrahim	25	N	23424	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
94	murugan	33	M	34374	acute appendicites	+	+	-	-	C	+	+	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
95	ramesh	24	M	34483	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 9th POD
96	michael annamal	34	F	35514	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
97	esakkiammal	30	F	34593	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
98	malai ganesan	27	M	34726	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	-	+	N	appendicular perforation	open appendicectomy	wound infection, treated conservatively,discharged by 13 th POD
99	chandrasekar	45	M	35010	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
100	thavasi	18	F	35037	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 6th POD
101	ramalakshmi	33	F	35158	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
102	jhonsy rani	22	F	35585	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
103	perumal	35	M	35667	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
104	mariappan	23	M	35942	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
105	gayathri	20	M	36209	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 4th POD
106	abdul azeer	21	M	36184	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	-	+	N	appendicular perforation	open appendicectomy	discharged on 5th POD

107	raja	18	M	53845	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	inflammed appendix	open appendicectomy	wound infection.. Treated conservatively discharged by 16 th POD
108	chandra	52	F	37049	acute appendicites	-	-	+	+	C	-	-	+	-	+	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
109	selvakumar	15	M	37203	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	wound infection. Treated conservatively and discharged by 14 th POD
110	dinesh	14	M	37301	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	+	+	N	early mass formation	open appendicectomy	discharged on 5th POD
111	gayathri	16	F	37494	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
112	muthulakshmi	35	F	37738	acute appendicites	-	-	-	-	C	-	-	+	-	-	+	-	+	N	inflammed appendix	open appendicectomy	wound infection present,treated conservatively and discharged by 12 th POD
113	thailapan	20	M	37825	acute appendicites	-	-	-	-	N	-	-	-	-	-	+	-	+	N	inflammed appendix	open appendicectomy	discharged on 7th POD
114	banupriya	21	F	34227	acute appendicites	+	-	-	-	N	-	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
115	arun	18	M	36665	acute appendicites	+	+	-	-	N	+	-	+	-	-	+	+	+	N	inflammed appendix	open appendicectomy	discharged on 5th POD
116	perumal	63	M	5787	acute appendicites	-	-	+	+	C	-	-	+	-	+	+	+	+	N	inflammed gangrenous apopen appendicectomy	open appendicectomy	wound infection treated conservatively and discharged by 17 th POD
117	arumugam	27	M	17556	perforation peritonitis	+	-	-	-	N	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 16th POD
118	puthiyasamy	37	M	16344	perforation peritonitis	-	-	+	-	C	-	+	+	-	+	+	+	+	N	Du perforation	closure with live omental patch	discharged on 9th POD
119	narayanasamy	35	M	15881	perforation peritonitis	-	-	-	-	N	-	-	+	+	-	+	+	-	N	Du perforation	closure with live omental patch	septicemia and expired at 2 nd POD
120	lakshmanasamy	72	M	18632	perforation peritonitis	+	+	-	+	C	+	+	+	-	-	+	+	+	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 14th POD
121	murugan	25	M	19097	perforation peritonitis	+	-	-	-	N	-	-	-	-	+	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
122	kavipitchai	65	M	18036	perforation peritonitis	+	-	+	-	C	-	+	+	+	-	+	+	-	N	jejunal perforation	primary closure done	discharged by 9 th POD
123	radha krishnan	52	M	20684	perforation peritonitis	-	-	-	-	C	-	+	-	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 11th POD
124	udhayakumar	33	M	21136	perforation peritonitis	+	-	-	+	C	-	-	+	-	+	+	+	+	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 14th POD
125	mariammal	55	F	22912	perforation peritonitis	+	+	+	-	N	+	+	-	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
126	vanamamalai	44	M	22993	perforation peritonitis	-	-	-	-	C	-	-	+	+	+	+	+	+	N	Gastric perforation	closure with live omental patch	wound infection, discharged on 16th POD
127	palani	63	M	2097	perforation peritonitis	+	-	+	-	D	-	+	+	-	+	+	+	+	N	Du perforation	closure with live omental patch	wound infection, discharged on 16th POD

128	ponnamal	65	F	1781	perforation peritonitis	-	+	+	-	D	+	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	wound infection, discharged on 18th POD
129	murugan	55	M	1328	perforation peritonitis	-	-	-	-	N	-	+	-	-	-	+	+	-	N	Du perforation	closure with live omental patch	septicemia, expired on 4th POD
130	edward	63	M	1249	perforation peritonitis	-	-	-	-	C	-	-	+	+	-	+	+	+	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 13th POD
131	murugan	50	M	798	perforation peritonitis	+	-	+	-	C	-	+	-	-	+	+	+	+	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 17th POD
132	soosai muthu	72	M	2883	perforation peritonitis	-	-	-	-	N	-	+	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 10th POD
133	kanyalakshmi	38	F	3520	perforation peritonitis	+	+	-	-	C	+	-	-	-	-	+	+	-	N	jejunal perforation	primary closure done	discharged on 10th POD
134	natarajan	50	M	34046	perforation peritonitis	-	-	+	-	C	-	-	+	+	+	+	+	+	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 14th POD
135	saroja	60	F	31721	perforation peritonitis	+	-	-	-	N	-	+	+	-	-	+	+	+	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 19th POD
136	pappa	40	F	30567	perforation peritonitis	-	-	+	-	D	-	-	-	+	+	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
137	thangammal	66	F	30836	perforation peritonitis	+	-	-	-	N	-	+	+	+	-	+	+	+	N	jejunal perforation	resection and anastamosis done	discharged on 11th POD
138	vellasamy	73	M	31622	perforation peritonitis	-	-	-	-	C	-	+	-	-	-	+	+	+	N	Du perforation	closure with live omental patch	discharged on 11th POD
139	amaravathy	57	F	37521	perforation peritonitis	+	-	+	-	C	-	+	+	-	+	+	+	-	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 15th POD
140	murugan	45	M	37065	perforation peritonitis	-	-	+	-	C	-	-	+	+	-	+	+	+	N	Ileal perforation	resection and anastamosis done	wound infecction, treated conservatively, discharged bu 16th POD
141	rajammal	42	F	36892	perforation peritonitis	+	-	+	-	N	-	+	+	+	+	+	+	-	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on14th POD
142	iyappan	40	M	1328	perforation peritonitis	-	+	+	+	N	+	+	-	-	+	+	+	+	N	Du perforation	closure with live omental patch	discharged on 10th POD
143	posai pandi	45	M	36105	perforation peritonitis	+	-	-	-	C	-	-	+	-	-	+	+	-	N	Ileal perforation	primary closure done	diacharged on 8th POD
144	ganeshan	46	M	28420	perforation peritonitis	-	-	-	-	C	-	+	-	+	-	+	+	-	N	Du perforation	closure with live omental patch	wound infection, treated, discharged on 21st POD
145	sankaran	55	M	34492	perforation peritonitis	+	+	+	-	N	+	+	+	-	+	+	+	+	N	Gastric perforation	closure with live omental patch	discharged on 11th POD
146	madasamy	55	M	34318	perforation peritonitis	-	-	-	-	C	-	-	-	-	-	+	+	-	N	Gastric perforation	closure with live omental patch	wound infection, treated, discharged on 21st POD
147	muthuramalingam	46	M	58219	perforation peritonitis	-	-	+	-	N	-	-	+	-	+	+	+	-	N	Gastric perforation	closure with live omental patch	septicemia, expired on 3rd POD

148	parvathy	60	F	33412	perforation peritonitis	+	-	-	-	C	-	+	-	+	-	+	-	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on13th POD
149	ponnappa narayanan	42	M	32559	perforation peritonitis	-	-	+	-	C	-	-	+	-	+	+	+	+	N	Gastric perforation	closure with live omental patch	respiratory infection, treated, discharged on13th POD
150	palanisamy	45	M	58893	perforation peritonitis	+	-	-	-	C	-	+	+	-	-	+	+	-	N	Gastric perforation	closure with live omental patch	septicemia, expired on 6th POD
151	devendran	32	M	29719	perforation peritonitis	-	-	-	-	D	-	+	-	+	+	+	-	+	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 16th POD
152	rajesh kumar	21	M	28727	perforation peritonitis	-	+	+	+	C	+	-	+	-	+	+	+	-	N	Ileal perforation	resection and anastamosis done	wound infection, treated conservatively, discharged by 18th POD
153	mookan	17	M	57205	perforation peritonitis	-	-	+	-	N	-	+	-	-	+	+	-	+	N	Transverse colonic perforation	primary closure done	septicemia,expired on 2nd POD
154	subramani	49	M	26532	perforation peritonitis	+	-	-	-	C	-	-	-	+	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
155	maridurai	46	M	23459	perforation peritonitis	-	-	-	-	N	-	+	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on11th POD
156	subramanian	45	M	63685	perforation peritonitis	+	+	+	+	C	+	-	-	+	+	+	+	+	N	Du perforation	closure with live omental patch	septicemia, expired on 5th POD
157	pandi	63	M	37842	perforation peritonitis	-	-	-	-	C	-	+	+	-	-	+	+	-	N	Gastric perforation	closure with live omental patch	discharged on 9th POD
158	shanmugathai	61	F	43749	perforation peritonitis	-	-	+	+	C	-	+	+	-	+	+	-	+	N	Du perforation	closure with live omental patch	discharged on 10th POD
159	lakshman	75	M	40640	perforation peritonitis	-	-	-	-	C	-	-	-	+	-	+	+	-	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 14th POD
160	kannan	43	M	40502	perforation peritonitis	+	-	+	-	N	-	+	+	+	+	+	+	-	N	Ileal perforation	resection and anastamosis done	enterocutaneous fistula, respiratory infection, treated, discharged by 28 th POD
161	rajammal	42	M	34892	perforation peritonitis	-	-	-	-	C	-	-	+	+	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 10th POD
162	jeganathan	65	M	27182	perforation peritonitis	-	-	+	-	C	-	-	+	-	+	+	+	-	N	jejunal perforation	resection and anastamosis done	wound infection,treated,discharged on 21st POD
163	kannan	75	M	38155	perforation peritonitis	+	+	-	-	N	+	-	+	+	-	+	-	+	N	band adhesions	band release	discharged on 10th POD
164	rajan	36	M	7388	perforation peritonitis	-	-	-	-	C	-	-	-	+	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on17th POD
165	alliran	42	M	37913	perforation peritonitis	+	-	+	+	N	-	-	+	-	+	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
166	mariyammal	55	M	40689	perforation peritonitis	-	-	-	-	C	-	-	-	+	-	+	+	+	N	Du perforation	closure with live omental patch	respiratory infection, treated, discharged on 15th POD

167	shanmugam	52	M	41221	perforation peritonitis	-	-	-	-	C	-	-	+	+	-	+	-	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
168	kumar	40	M	42178	perforation peritonitis	-	+	-	-	N	+	-	-	+	-	+	+	-	N	Gastric perforation	closure with live omental patch	wound infection,treated, discharged on 18th POD
169	manoharan	42	M	31335	perforation peritonitis	+	-	+	-	C	-	+	+	+	+	+	+	+	N	Du perforation	closure with live omental patch	wound infection,treated on 13th POD
170	duraichi	48	F	43365	perforation peritonitis	-	-	-	-	C	-	-	+	+	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 11th POD
171	manikandan	43	M	44682	perforation peritonitis	-	-	-	-	N	-	-	+	-	-	+	-	-	N	jejunal perforation	resection and anastamosis done	diacharged on 8th POD
172	kalimuthu	45	M	41198	perforation peritonitis	+	+	+	+	N	+	-	-	+	+	+	+	-	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 14th POD
173	subbiah	64	M	38211	perforation peritonitis	-	-	-	-	N	-	-	+	-	-	+	+	+	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 15th POD
174	kamal batcha	48	M	39622	perforation peritonitis	+	-	-	-	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 18th POD
175	ayyadurai	63	M	33437	perforation peritonitis	-	-	+	+	C	-	-	-	+	+	+	-	-	N	band adhesion	band release	discharged on 10th POD
176	shanmugiah	78	M	32712	perforation peritonitis	+	-	-	-	N	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
177	alagesan	56	M	25949	perforation peritonitis	-	-	-	-	C	-	-	+	-	-	+	+	+	N	Gastric perforation	closure with live omental patch	respiratory infection,treated,discharged on 14th POD
178	sundar	40	M	23448	perforation peritonitis	+	-	+	+	C	-	-	+	-	+	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
179	nagammal	50	F	38869	perforation peritonitis	-	+	-	-	N	+	-	-	+	-	+	-	-	N	Du perforation	primary closure done	septicemia, expired on 5th POD
180	manikkaraj	45	M	24913	perforation peritonitis	-	-	-	-	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
181	sundari	43	F	24479	perforation peritonitis	+	-	+	-	C	-	+	+	+	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 14th POD
182	azhagammal	58	F	45743	perforation peritonitis	-	-	-	+	N	-	-	+	-	-	+	+	+	N	Du perforation	closure with live omental patch	discharged on 10th POD
183	murugan	43	M	16484	perforation peritonitis	+	-	-	-	C	-	-	-	-	-	+	-	-	N	Ileal perforation	primary closure done	discharged on 9th POD
184	vujayakumar	45	M	46572	perforation peritonitis	-	-	-	-	C	-	-	+	+	-	+	+	-	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 12th POD
185	gurusamy	65	M	67836	perforation peritonitis	+	-	-	-	N	-	-	-	-	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 15th POD
186	marimuthu	32	M	8968	perforation peritonitis	-	-	-	-	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	wound infection,treated,discharged on 12th POD
187	sugantha	86	F	9448	perforation peritonitis	+	-	-	-	C	-	-	+	-	-	+	+	-	N	Ileal perforation	primary closure done	discharged on 9th POD

188	samiathevar	65	M	9680	perforation peritonitis	-	-	-	-	N	-	-	+	+	+	+	-	-	N	Du perforation	closure with live omental patch	discharged on 10th POD
189	velusamy	75	M	17638	perforation peritonitis	+	-	-	+	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated, discharged on 16th POD
190	karuppasamy	40	M	16060	perforation peritonitis	-	-	-	-	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 10th POD
191	subbiah	70	M	26042	perforation peritonitis	-	-	+	-	N	-	-	+	+	+	+	+	-	N	Du perforation	closure with live omental patch	septicemia, expired on 3rd POD
192	ananthi	43	F	14361	perforation peritonitis	+	-	-	-	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	respiratory infection,treated,discharged on 12th POD
193	murugan	35	M	17717	perforation peritonitis	+	-	-	-	C	-	-	+	-	-	+	+	-	N	Du perforation	closure with live omental patch	discharged on 9th POD
194	esakkiammal	65	F	16466	acute intestinal obstruction	+	-	+	-	C	-	+	+	-	+	+	+	S	N	Band adhesion	band release	discharged by 10 th POD
195	velayutham	60	M	18518	obstructed right inguinal hernia	+	-	-	-	C	+	-	-	-	-	+	-	N	N	omental obstruction	release and repair	wound infection,treated,discharged by 16th POD
196	thangamani	31	M	20043	acute intestinal obstruction	+	-	+	-	C	+	+	+	-	+	+	+	S	R	Band adhesion	band release	discharged on 9th POD
197	ganesan	40	M	2156	acute intestinal obstruction	+	-	+	-	C	-	-	+	-	+	+	+	S	R	Band adhesion	band releade	respiratory infection,treated,discharged on 18th POD
198	muthumani	61	M	21336	acute intestinal obstruction	+	-	-	-	N	-	-	+	-	+	+	+	S	N	Band adhesion	band release	discharged on 9th POD
199	sankaran	68	M	23613	obstructed L inguinal hernia	-	-	-	-	C	-	-	+	-	-	+	-	+	N	Ileal gangrene	release and repair	wound infection,treated,discharged on11th POD
200	indira	36	F	23014	acute intestinal obstruction	+	+	+	-	C	+	+	+	+	+	+	+	S	R	Band adhesion	band release	wound infection,treated,discharged on 14th POD
201	raj	56	M	24319	acute intestinal obstruction	+	-	-	-	N	-	-	+	-	-	+	-	S	N	Band adhesion	band release	discharged on 9th POD
202	muppidathi	42	F	25764	obstructed umblical hernia	-	-	-	-	N	+	-	+	-	-	+	+	N	N	ileal pregangrene	release and repair	respiratory infection,treated and dischrged on 14th POD
203	subburayan	70	M	26042	acute intestinal obstruction	+	-	+	-	C	-	+	+	+	+	+	+	++	DEPOSIT	CA Rectum	colostomy done	respiratory infection,treated,discharged on14th POD
204	chellappa	39	M	29892	acute intestinal obstruction	+	-	+	-	C	-	+	+	+	+	+	+	S	N	Band adhesion	band release	discharged on 7th POD
205	selvam	43	M	31255	obstructed right inguinal hernia	+	-	+	-	C	-	+	+	+	+	+	+	S	R	ileal pregangrene	release and repair	discharged on 7th POD
206	ganesan	35	M	1880	acute intestinal obstruction	+	-	-	-	N	-	-	+	-	+	+	-	N	N	Band adhesion	band release	discharged on 6th POD
207	lakshmi	28	F	28081	obstructed incisional hernia	-	-	+	-	C	-	-	+	-	+	+	+	S	N	Omental gangrene	omentectomy, release and repair	discharged on 10th POD
208	vel	62	M	28557	obstructed R inguinal hernia	-	-	-	-	N	-	-	+	-	-	+	-	S	N	ileal pregangrene	release and repair	discharged on 8th POD

209	pappamal	48	F	30941	acute intestinal obstruction	+	+	+	-	N	-	+	+	-	+	+	+	++	N	Band adhesion	band release	respiratory infection,treated,discharged on 13th POD
210	palkani	42	M	58309	acute intestinal obstruction	+	-	+	-	C	+	-	+	-	+	+	+	N	R	Ilel stricture	resection and anastamosis done	septicemia,death on 3rd POD
211	karthikeyan	36	M	29099	obstructed R inguinal hernia	+	-	-	-	N	-	+	+	-	+	+	-	S	N	omental onbstruction	release and repair	discharged on 8th POD
212	karuppu	53	M	29498	obstructed umblical hernia	-	-	+	-	N	-	-	+	-	+	+	+	N	N	ileal pregangrene	release and repair	discharged on 8th POD
213	petchimuthu	67	M	29568	obstructed R inguinal hernia	+	-	+	-	C	-	+	+	-	+	+	+	N	GRO WTH	CA Rectum	colostomy	wound infection,treated,discharged on 17rh POD
214	parvathy	60	F	27995	acute intestinal obstruction	+	-	-	-	C	-	-	+	-	+	+	+	-	N	Band adhesion	band release	respiratory infection,treated,discharged on 12th POD
215	vallinaygam	50	M	28010	obstructed R inguinal hernia	-	-	+	-	N	-	-	+	-	-	+	-	N	N	omentan obstruction	release and repair	wound infection,treated,discharged on 16th POD
216	santhanam	46	F	23620	obstructed incisional hernia	-	-	-	-	C	-	-	+	-	-	+	+	N	N	omental obstruction	release and repair	discharged on 8th POD
217	somu	45	M	25536	acute intestinal obstruction	+	-	-	-	D	-	+	+	-	+	+	+	N	N	Band adhesion	band release	discharged on 6th POD
218	sahul hameed	52	M	25730	acute intestinal obstruction	+	-	+	-	C	-	+	+	-	+	+	+	N	N	ca transverse colon	resection and anastamosis	discharged on 11th POD
219	thangamariyappan	52	M	25348	acute intestinal obstruction	+	-	+	-	C	-	+	+	+	+	+	+	++	R	CA Hepatic flexture	right hemicolectomy done	wound infection,discharged on 20th POD
220	armugam	75	M	46632	acute intestinal obstruction	+	-	+	-	C	-	+	+	-	+	+	+	+	R	CA Ascending colon	right hemocolectomy done	death on 7th POD
221	mariyappan	41	M	42636	acute intestinal obstruction	+	-	-	-	N	-	-	+	+	+	+	+	-	-	Band adhesion	band release	respiratory infection,treated,discharged on 13th POD
222	murugan	46	M	34641	obstructed umblical hernia	+	-	-	-	N	-	-	-	-	-	+	+	-	-	ileal pregangrene	release and repair	wound infection,treated,discharged on 16th POD
223	raji	56	F	35420	acute intestinal obstruction	-	-	+	-	C	+	-	+	-	+	+	+	-	-	Band adhesion	band release	discharged on 9th POD
224	shanmuganantham	67	M	43218	obstructed left inguinal hernia	+	-	+	-	N	-	-	-	-	+	+	-	S	R	omental gangrene	omentectomy, release and repair	discharged on 11th POD
225	priya	48	F	34520	acute intestinal obstruction	+	-	+	-	C	+	-	+	-	+	+	+	-	-	Band adhesion	band release	discharged on 9th POD
226	leelavathy	65	F	35498	acute intestinal obstruction	-	-	+	-	D	-	+	+	-	+	+	+	N	N	CA Sigmoid colon	resection and anastamosis done	wound infection,DVT,treated conservatively,discharged on28th POD
227	murugananthan	82	M	36712	acute intestinal obstruction	+	+	-	-	C	+	+	+	-	+	+	+	-	-	duodenal perforation	closure with live omental patch	wound infection,treated,discharged on 15th POD

228	sankarammal	63	F	36452	acute intestinal obstruction	-	-	+	-	N	+	-	+	-	+	+	+	N	GRO WTH	CA Rectum	colostomy	discharged on 9th POD
229	krishnan	53	M	35478	acute intestinal obstruction	+	-	+	-	C	-	-	-	-	+	+	+	-	-	mesentric vascular ischemia	resection and anastamosis done	expired on 3rd POD
230	suresh	40	M	33206	acute intestinal obstruction	+	-	-	-	N	-	-	+	-	-	-	+	N	R	Band adhesion	band release	discharged on 10th POD
231	gandhimathi	42	F	34652	obstructed incisional hernia	+	-	-	-	N	-	-	+	-	-	+	-	N	N	omental gangrene	omentectomy, release and repair	respiratory infection,treated,discharged on 14th POD
232	dayanithi	52	M	33198	obstructrd right inguinal hernia	-	-	-	-	N	-	-	-	-	-	+	-	N	N	ileal pregangrene	release and repair	discharged on 8th POD
233	devaki	42	F	35619	acute intestinal obstruction	+	-	+	-	C	+	-	+	-	+	-	+	-	-	Band adhesion	band release	discharged on 10th POD
234	arun	56	M	38427	obstructed left inguinal hernia	+	-	+	-	C	-	+	+	+	+	+	+	S	R	ileal pregangrene	release and repair	respiratory infection,treated,discharged on 13th POD
235	vasudevan	43	M	40357	acute intestinal obstruction	+	-	-	-	N	-	-	+	-	-	+	+	-	N	CA Sigmoid colon	resection and anastamosis	discharged on 12th POD
236	umarani	58	F	7131	obstructed umblical hernia	+	-	-	-	C	-	-	+	+	+	+	+	++	N	Ileal Gangrene	resection and anastamosis	discharged on 10th POD
237	paramasivan	65	M	14504	acute intestinal obstruction	-	+	-	-	C	-	-	+	-	+	+	+	++	R	CA Hepatic flexture	right hemicolectomy done	enterocutaneous fistula,respiratory infection,treated,discharged in 29th POD
238	ramalingam	66	M	13432	obstructed R inguinal hernia	+	-	-	-	N	-	-	+	-	+	+	-	N	N	omental gangrene	excicion,release and repair	wound infection,treated,discharged on 14th POD
239	peratchi	56	F	13497	acute intestinal obstruction	+	-	+	-	C	-	-	+	-	+	+	+	-	-	Band adhesion	band release	discharged on 8th POD
240	nagarajan	57	M	16002	acute intestinal obstruction	+	-	-	-	C	+	-	+	-	+	+	+	-	-	Band adhesion	band release	discharged on 10th POD
241	anthony	65	M	53292	obstructed R inguinal hernia with pyocoele death		+	+	-	C	-	+	+	+	+	+	+	+	N	ilal gangrene with pyocele	resection and anastamosis with righr orchidectomy	expired on 2nd POD
242	karuppasamy	49	M	15392	acute intestinal obstruction	+	-	+	-	C	-	+	+	+	+	+	+	-	-	Band adhesion	band release	discharged on 9th POD
243	shanmugathai	58	F	15396	obstructed incisional hernia	-	-	-	-	C	+	-	+	-	-	+	+	-	-	omental gangrene	omentectomy, release and repair	discharged on 9th POD
244	eswaran	65	M	17764	obstructed left inguinal hernia	-	-	-	-	N	+	-	-	-	-	-	-	N	N	omental gangrene	omentectomy, release and repair	discharged on 11th POD
245	samiya devar	65	M	28367	aute intestinal obstruction	+	+	-	-	N	-	-	+	-	+	+	-	-	-	duodenal perforation	closure with live omental patch	respiratory infection,treated,discharged on 14th POD
246	sarangan	62	M	16014	obstructed R inguinal herna	+	-	+	-	C	-	+	-	-	+	+	-	N	N	ileal pregangrene	release and repair	discharged on 8th POD
247	thangam	56	F	30332	obstructed incisional hernia	-	-	-	-	N	+	-	+	-	-	+	-	N	N	ileal pregangrene	release and repair	wound infection,respiratory infection,treated,discharged on 15th POB

248	siva	68	M	18362	obstructed right inguinal hernia	-	-	-	-	C	-	-	-	-	+	+	+	N	N	ileal pregangrene	release and repair	discharged on 8th POD
249	essakiammal	60	F	23654	acute intestinal obstruction	+	+	-	-	N	-	-	+	-	+	+	+	-	-	Band adhesion	banr release	discharged on 9th POD
250	essakithai	55	F	36545	sigmoid volvulus	+	-	+	-	C	-	-	+	+		+	+	+	R	Sigmoid Volvulus	resection and anastamosis	discharged on 12th POD